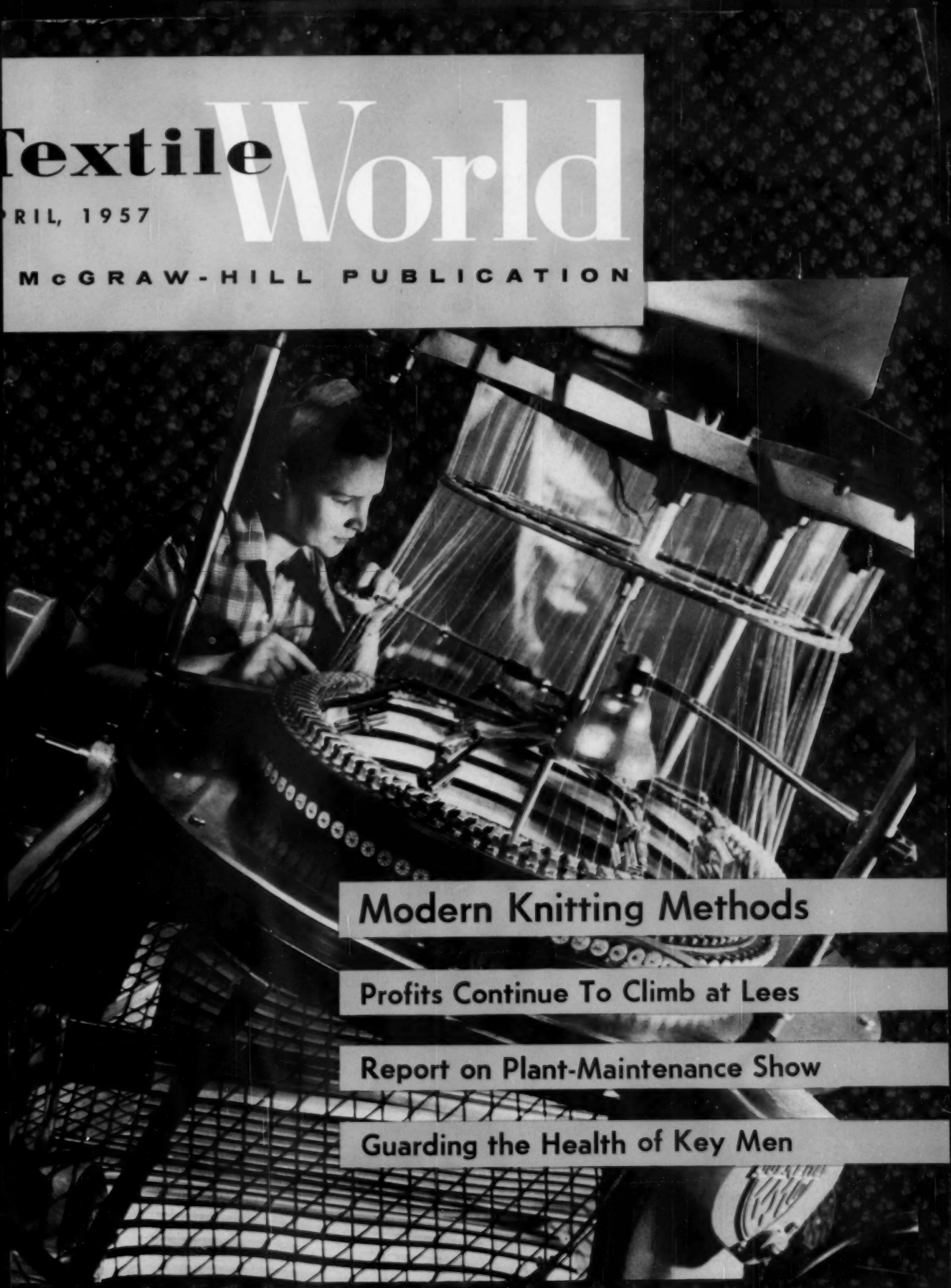
Textile World

RIL, 1957

McGRAW-HILL PUBLICATION

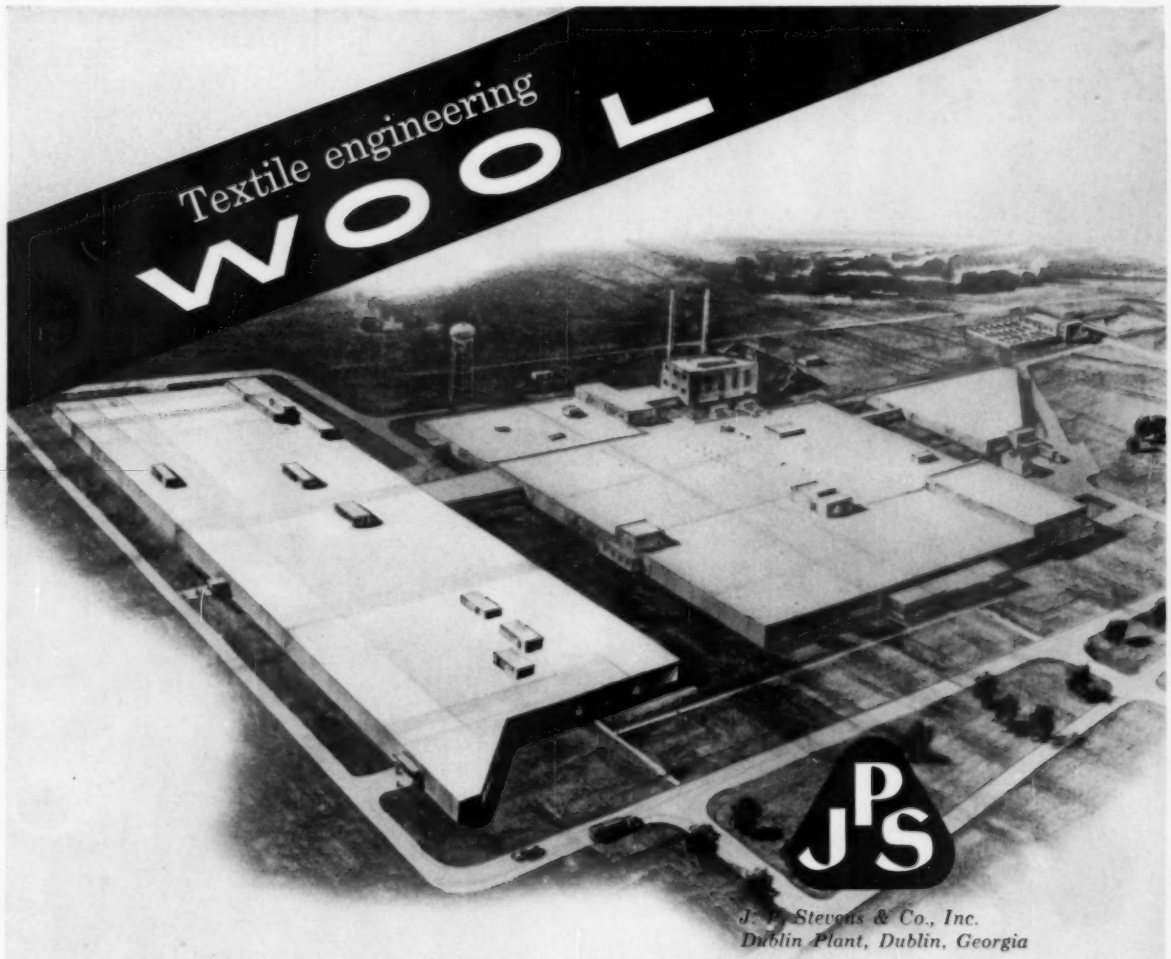


Modern Knitting Methods

Profits Continue To Climb at Lees

Report on Plant-Maintenance Show

Guarding the Health of Key Men



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Dublin Plant, Dublin, Georgia

Textile engineering for leaders in the woolen industry has long been a major activity at Robert & Company Associates. The new woolen plant of the J. P. Stevens & Co., Inc., now in operation at Dublin, Georgia, is another of many projects designed by our company for other great names in the field, including the Peerless Woolen Mills, James Lees & Sons Company, Fieldcrest Mills, Inc., and others.

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Textile Engineering Division
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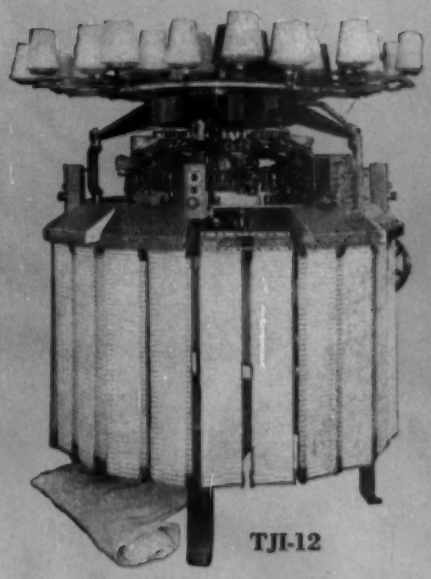

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Volume 107 Number 4

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CALENDAR

April

Southern Municipal and Industrial Waste Conference, Student Union Building, N. C. State College, Raleigh, N. C., April 1 & 2.

American Cotton Manufacturers Institute, annual convention, Palm Beach Biltmore Hotel, Palm Beach, Fla., April 4 to 6.

National Packaging Conference and Exposition, sponsored by American Management Association, International Amphitheatre, Chicago, Ill., April 8 to 11.

National Packaging Conference and Exposition, International Amphitheatre, Chicago, Ill., April 9 to 11.

Alabama Cotton Manufacturers Association, 56th Anniversary Meeting, Buena Vista Hotel, Biloxi, Miss., April 10 to 12.

AATCC, Southeastern Sect., Lindale, Ga., April 13.

Southern Textile Association, Northern North Carolina-Virginia Div., Danville, Va., April 13.

National Knitted Outerwear Association, annual meeting, Waldorf-Astoria, New York, N. Y., April 23 & 24.

American Cotton Manufacturers Institute, Inc., Cotton Fiber Testing Laboratory, open house, Clemson House, Clemson, S. C., April 24 & 25.

Textile Operating Executives of Georgia, spring meeting, Hightower Textile Building, Georgia Institute of Technology, Atlanta, Ga., April 27.

National Association of Hosiery Manufacturers, annual meeting and hosiery industry conference, Claridge Hotel, Atlantic City, N. J., April 29 & 30.

The Underwear Institute, annual meeting, Hotel Traymore, Atlantic City, N. J., April 29.

Knitting Arts Exhibition, Convention Hall, Atlantic City, N. J., April 29 to May 3.

Materials Handling Exposition, Convention Hall, Philadelphia, Pa., April 29 to May 3.

May

The Fiber Society, spring meeting, Clemson House, Clemson, S. C., May 1 & 2.

Cotton Manufacturers Association of Georgia, annual convention, Emerald Beach Hotel, Nassau, Bahama Islands, May 1 to 4.

Alabama Textile Operating Executives, spring meeting, Thach Auditorium, Auburn, Ala., May 4.

Southern Textile Association, Piedmont Div., Catawba Country Club, Hickory, N. C., May 4.

North Carolina Industrial Safety Conference, Robert E. Lee Hotel, Winston-Salem, N. C., May 9 to 11.

Carolina Yarn Association, annual outing, The Carolina, Pinehurst, N. C., May 16 to 18.

National Cotton Week, sponsored by the National Cotton Council of America, May 20 to 25.

American Society for Quality Control, annual convention, Masonic Temple, Detroit, Mich., May 22 to 24.

South Carolina Textile Manufacturers Association, annual meeting, The Cloister, Sea Island, Ga., May 30 to June 1.

Tufted Textile Manufacturers Association, annual convention, Fontainebleau, Miami Beach, Fla., May 30 to June 1.

June

Southern Textile Association, annual convention, Ocean Forest Hotel, Myrtle Beach, S. C., June 20 to 22.

September

Combed Yarn Spinners Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 26 & 27.

Carded Yarn Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 27 & 28.

Textile Operating Executives of Georgia, fall meeting, Hightower Textile Building, Georgia Institute of Technology, Atlanta, Ga., Sept. 28.

October

Chemical Finishing Conference, National Cotton Council of America, Statler Hotel, Washington, D. C., Oct. 2 & 3.

Alabama Textile Operating Executives, fall meeting, Thach Auditorium, Auburn, Ala., Oct. 12.

National Industrial Packaging & Handling Exposition, Convention Hall, Atlantic City, N. J., Oct. 28 to 31.

November

AATCC, national convention, Hotel Statler, Boston, Mass., Nov. 14 to 16.

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15 Checks To Inspect PURCHASED YARN

An inspection program of all yarn bought outside the mill should include—

- Examination of cone appearance
- Checks on weight, twist, and yarn size
- Test of processing qualities

By P. WIERKS, Leach Textiles Ltd.

WHEN YOU RECEIVE YARN from an outside source you ask yourself these questions: (1) Is this the yarn I ordered? (2) Did I receive what I paid for? (3) Did I buy the right yarn for the right job? A positive answer to these questions can be assured only by a systematic inspection that covers cone appearance, the yarn itself, and the processing qualities of the yarn.

Cone Appearance

1. A well-wound cone shows a symmetrical pattern of yarn layers that are undisturbed from top to bottom. The sides of this cone give the impression of a straight diagonal line without hills. The yarn below a fault formed by such a hill would, during overhead unwinding, be subject to high tension and friction.

2. The yarn at the top and bottom of the cone should lie in true circles. Ends protruding over the top or bottom surface and crossing other circles are likely to break when unwound at high speeds. The top of the paper tube should be visible. An overrun cone will not unwind smoothly at the end.

3. Handling, packing, and transport are not always done with the necessary care cones require. Yarn rubbing and small cuts where the cones have hit a sharp edge are readily noticeable at the top and bottom edges.

4. The cone should be firmly wound. Too-soft cones hold less yarn and affect the efficiency of the next process. In severe cases the yarn will unwind in bunches.

5. Cone weight can be important in special cases such as when an order for a creel calls for 50 ends to be covered by 50 lbs. of yarn. This lot must be ordered on 1-lb. cones to avoid splitting the cones.

Yarn

6. Inspect actual weight of the yarn against the invoice weight to guard against human errors. Bookkeeping and shipping are done by different people, and a hastily written 7 can often pass for a 9.

7. The scale weight is affected by moisture content and could be wrong due to the testing procedure at the shipping point. The difference between scale weight and actual yarn content can be a high figure for a large shipment.

8. The yarn number must be checked carefully. Too-coarse yarns provide a loss for the mill because the fabric will be too heavy, while too-fine yarns open the door for customers' complaints.

ASTM standards allow a tolerance of one yarn number either way from standard for medium-size worsted yarns. ASTM standards for cotton yarns permit a variation of ±3%, and 5% for spun-rayon yarns.

9. The raw material in the yarn is the cause of one of the main price variations for yarns of the same number. The ideal way to inspect this item is a thorough analysis, but many mills prefer to investigate this point only when the raw material is believed to be substandard.

10. Correctly twisted yarn should have (1) the correct direction of twist, (2) the specified amount of turns per inch, and (3) an even distribution of twist. The turns per inch, measured over several 10-in lengths, should conform to the number stated on the yarn order and evenly distributed over longer distances.

Here again, ASTM standards permit a variation. Woolen and worsted yarns are acceptable when the twist does not vary more than 7.5% from package to package as well as from the specified twist. Cotton yarns should stay within a 10% limit for singles or 5% for plied yarns. A 5% variation is allowed for spun-rayon and acetate yarns.

11. High-priced yarns should be outstanding for evenness and appearance, while an attractive price will offset a certain lack of those features in lower grades. The yarn should be reasonably free from visual faults such as thick ends, slubs, neps, foreign waste, dirty or oily spots; and it should appear even to the eye.

12. Sufficient strength to withstand subsequent processes is a necessity for all yarns. A quick, manual examination will show if the yarn has at least the required minimum strength. Take about 4 ins. of yarn between the thumb and forefinger of each hand and apply a slow, steady pull by moving the hands outward. A clear cut at both breaking points without any of the components protruding is a promising sign for the absence of such faults as cracked ends.

13. The shade of dyed yarn must match the original sample. Although the variations between the original sample and the first shipment may not be significant, the variation between the original sample and the second shipment could be too much.

Processing Qualities

14. The unwinding qualities of the cones can be accurately rated while you are checking the over-all yarn length for evenness, waste, strength, and twist. A cone can appear to be ideal on the surface but the yarn may bunch, block the tension devices, and increase waste.

15. Check the knots. If a too-short tail end is left, slippage might occur and cause a yarn break. Long tails cause headaches for weavers and burlers.

TEXTILE WORLD, JULY, 1956

100

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ATLANTIC CITY
APRIL 29TH-MAY 3RD

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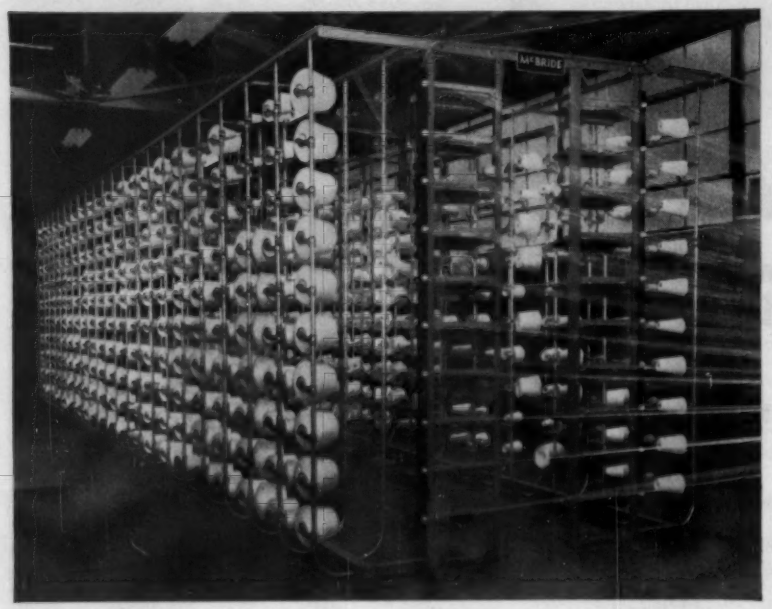

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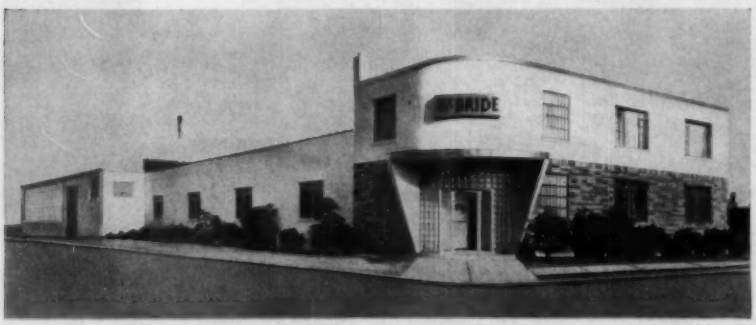

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Write to Editor, Round Table, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

CAN INCREASED EFFICIENCY OFFSET HIGH OPERATING COSTS?

Dear Editor:

I noted your editorial on page 69 of the December issue of TEXTILE WORLD with interest. The conclusion is that you are making a realistic statement that limitation on the import of Japanese cotton goods is a temporary relief at best.

I wonder if you can get for me an answer to this question: How can increase in efficiency possibly make up for the difference in raw material and first cost available to foreign mills?

AGNEW H. BAHNSON, JR.
President
Bahnson Co.
Winston-Salem, N. C.

[Increase in mill efficiency alone cannot offset the wage and other cost advantages that foreign countries have. It can help; and there's a lot of room for improved efficiency in mills. Other places that savings can be made are in marketing, transportation, and other nonmill costs.

*And one of the most rewarding possibilities of all is to avoid competing in lines of goods that low-wage countries can make. Wages will continue to rise in the United States faster than anywhere else; so we may as well face it.—*EDITOR]

"I WAS LUCKY ENOUGH TO GET A JOB IN TEXTILES"

Dear Editor:

Within the last few months you have published several discussions on possible ways and means of attracting

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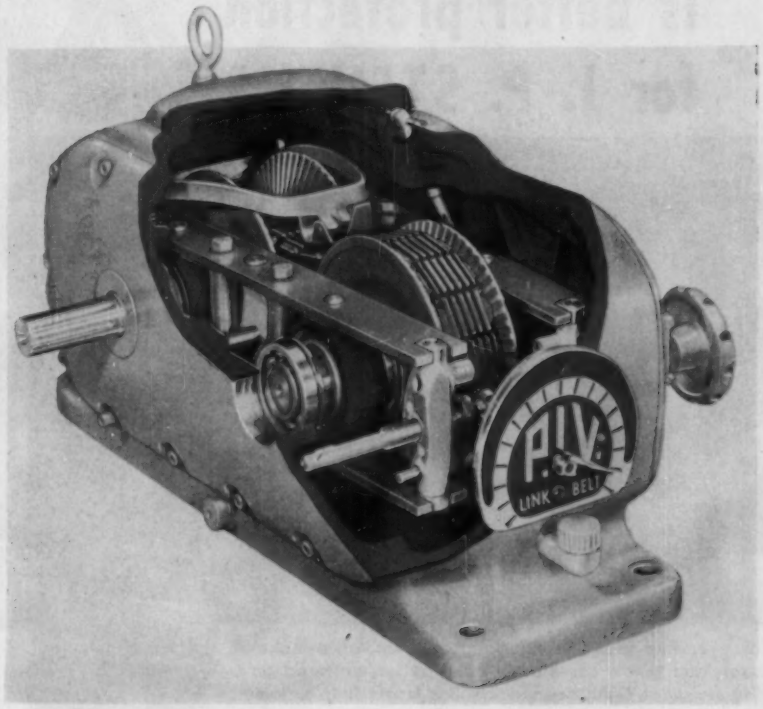

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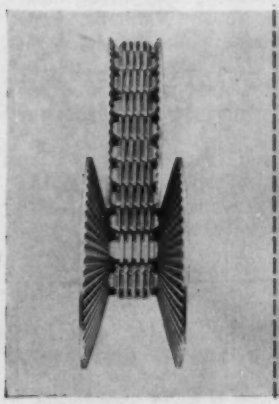
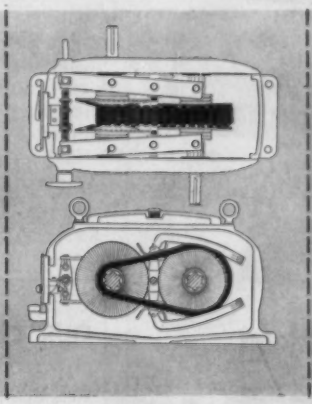
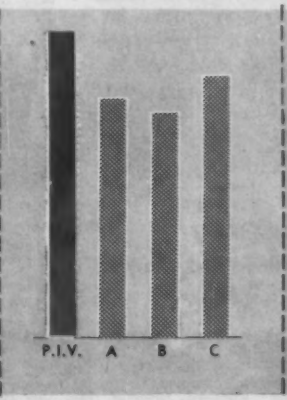
How LINK-BELT P.I.V. differs from other variable speed drives



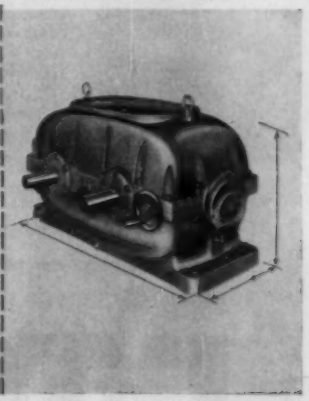
POSITIVE MESH of self tooth-forming chain with grooved wheels assures full-rated hp at output shaft. All-metal construction . . .



PREVENTS SLIPPAGE because the P.I.V. drive chain does not depend on friction and is unaffected by atmospheric conditions.



UNMATCHED ACCURACY is demonstrated by this actual comparison of maintained rpm of P.I.V. and three other variable speed drives.



GREATER COMPACTNESS results from short-center arrangement of drive mechanism. Some P.I.V. models save 50% on floor space.

For more data, write this page number on Reader-Service card. →

Automatic Packaging saves more...sells more, is better protection for J. P. STEVENS

For over five years of volume production, Utica-Mohawk sheets and pillow cases have been better wrapped on a Hayssen; neat, tight, clean, appealing from mill to customer.

● Your Distributors, your Dealers, your Customers demand better protection and Sales-Appeal! J. P. Stevens, like hundreds of others across the country and around the world have found they can meet these demands at less cost with Hayssen Wrapping.

We can save you money over your present wrapping system, too, and give you added protection and sales appeal.

Let our experienced packaging engineers help you with your packaging problems. WRITE US TODAY!

HAYSSEN

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more young men to the textile industry in which the editors, the educators, and key men have expressed their opinions.

I have read all of them with interest, but the first one to sting me to action is the one in the February issue, "What They're Afraid Of."

Let's take another look at the punch lines. Don't just read them. Think about what they say:

"The only thing we are afraid of is you! You who make golden-edged promises that you do not remotely intend to uphold in the future.

"All we want is the truth. Give us the true story, and you will be surprised at the results. In return for the truth, a sense of security and sound business policies, you will get a young mind eager to learn the textile trade and an undying loyalty to your company."

I am encouraged by this expression of independence; the revival of the spirit to pioneer. It recalls the guarantee that Columbus signed before he sailed the oceans of a square world and how the Indians persuaded the wagon trains to come West. Now, who guarantees the success of an enterprise? Only the people involved in that enterprise.

My advice to the young men preparing to enter the textile industry is this: Have no fear of the men in management. They are just as human as you are. Their ethics are of the highest order; their honesty and integrity are on a par with that of the management of any industry.

So you want a sense of security, too! Well, that is a feeling that also comes from within. You will develop that by striving to excel in your job, the satisfaction of knowing you are doing a good job. Nobody will have to tell you; you'll know when you are doing a good job.

I am defending the management group as a whole. Naturally, some people of undesirable principles get in, but that's the case in all industry. I have no defense for them and certainly they don't belong in this or any industry.

Perhaps you want to know why I'm sold on the management. Well, I've

CONTINUED ON PAGE 10

OUR COVER

Photo made at Lawrence Knitting Mills, Charlotte, N. C., by Coxe Studios, Greenville, S. C. See Annual Knitting Section, page 139.

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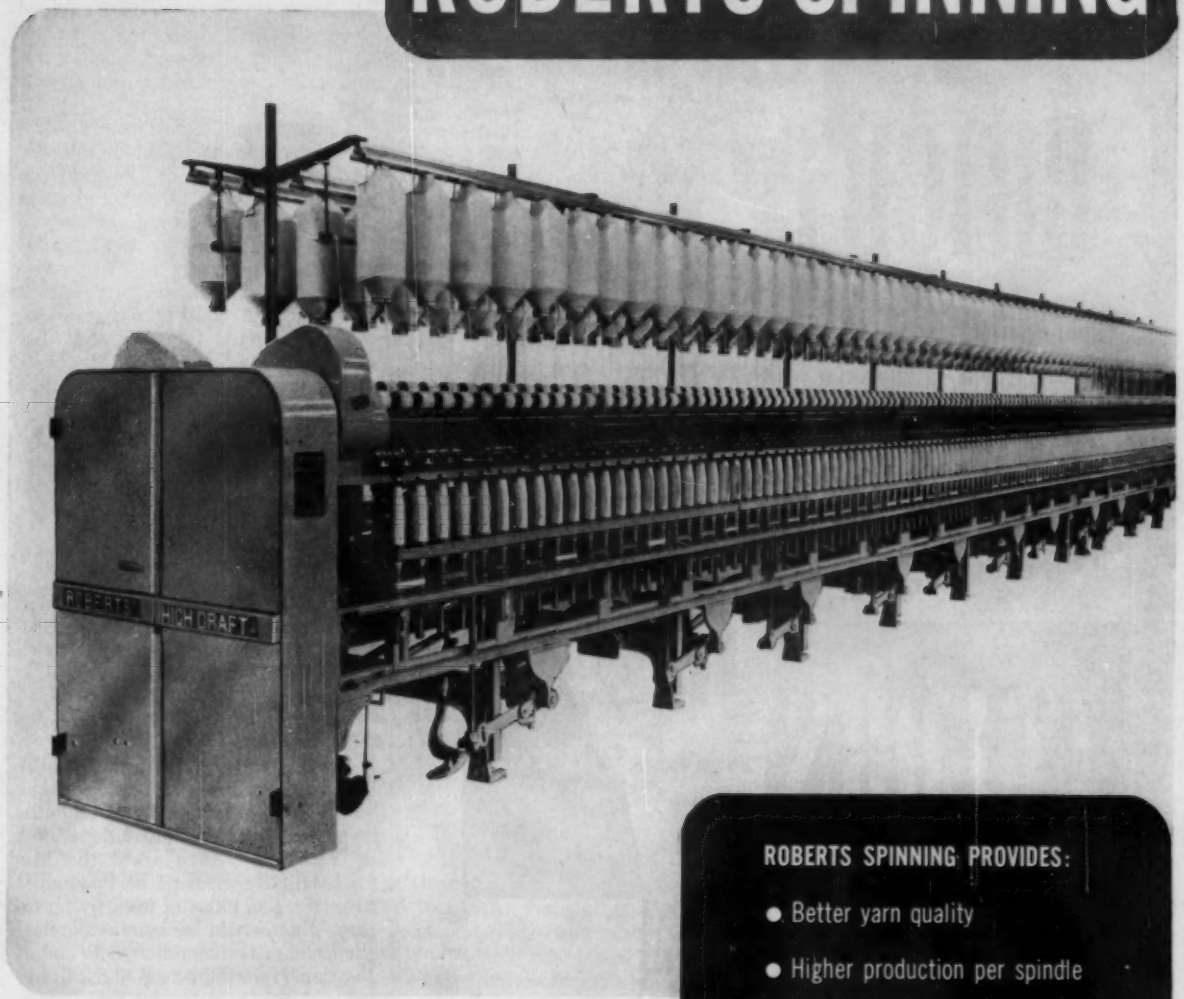
ROBERTS SPINNING



ROBERTS SPINNING PROVIDES:

- Better yarn quality
- Higher production per spindle
- Increased package sizes
- Lower maintenance expense
- Lowest first cost

COMPARE ALL 3

For high production, top yarn quality, large packages, low maintenance expense, dependability—and, at the lowest investment per spindle – Roberts Spinning is second to none in America today.

Available in 39 inch, 36 inch and the new Roberts 25 inch width Frames.

All standard features used on Roberts Spinning Frames can be adapted as Changeovers to your existing frames.

2 ¼ MILLION SPINDLES

In Changeovers and complete Frames—Roberts Spinning has been overwhelmingly accepted by American mills – over 2¼ million spindles now equipped with ROBERTS HIGH DRAFT.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

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BRIGHT

CLEAR

COLORS

assure added sales appeal with
GLOBE – DYED SYNTHETIC YARNS

For fine hand, and superior knitting and weaving qualities, you can rely on Globe package-dyed ORLON—DACRON —NYLON—ACRILAN.

Globe does package dyeing on tubes, skein and warp dyeing and bleaching, warp mercerizing and sizing.

Yarns we process include cotton, rayon, worsted, nylon, linen, blend and novelty yarns. Also Acrilan— Dacron — Orlon.

Globe DYE WORKS CO.
1865 1957

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been working for it a long time. I started in 1930, and you can bet your buttons the graduate then didn't have to worry about which of his five or six job offers he was going to accept and which companies he would be forced to disappoint. He scampered about until he found a job—any job. I was just lucky enough to get one in textiles.

I cannot recall an instance in which management misrepresented the truth, made me a promise, or told me I was secure. Management may not give you all you think you deserve, but it will reward you for all you merit; and I still like it that way.

The business of correcting "what's wrong" is not altogether a one-sided problem. And if the scouts felt that each interview was with a Mister X, maybe—just maybe—they wouldn't be there at all.

N. R. MARTIN
Greenville Mills, Inc.
Greenville, Miss.

TEXTILE WORLD'S INDEX

TEXTILE WORLD's Index appeared for the first time in the March issue. In this and all future issues the index will be found on page 24. In response to a number of requests, we are glad to explain how the data for the index are compiled.

Since basic facts and figures on the consumption and production of the various textiles are usually two months or more behind the times, the editors of TEXTILE WORLD asked the McGraw-Hill Department of Economics to produce an index of industry operations that would measure accurately the trend of textile-mill activity and at the same time be an up-to-date indicator of this industry.

The staff of the McGraw-Hill Economics Department accepted the challenge. After studying various possibilities for an index of textile-mill activity, they came up with an index of man-hours worked in the textile industry adjusted for changes in productivity in the industry. In this manner, TEXTILE WORLD is now able to provide its readers with an accurate and timely index of the textile field.

Sources of Data

Figures on the number of production workers and average hours worked per week in textile mills throughout the nation are gathered monthly by the U. S. Bureau of Labor Statistics. This government agency compiles these figures and releases them very soon after the collection date.

The estimates of changes in produc-

CONTINUED ON PAGE 254

← For more data, write this page number on Reader-Service card.

how would YOU move a mountain of COTTON?*

—THIS MODERN WAY→

←OR THIS OLD-FASHIONED WAY

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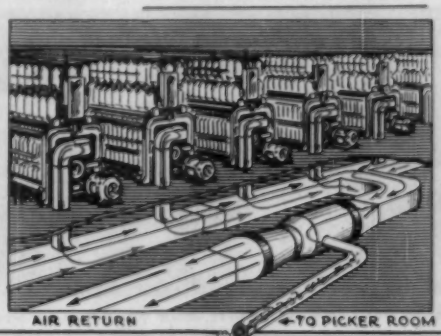
PNEUMAFIL® C.M.R.

(CENTRAL MATERIAL RECOVERY)

does it AUTOMATICALLY!



FOR SPINNERS ONLY! Pneumafil CMR (Central Material Recovery) means:

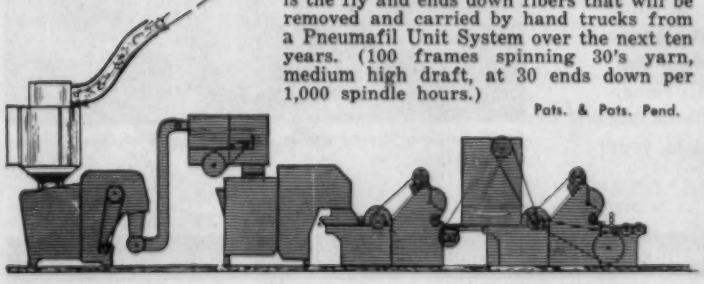
AUTOMATION—Fly and ends down fibers are continually and automatically delivered to the picker room (or any desired location) for reintroduction into process.

CMR means no time consuming frame to frame cleaning out of individual collector units and the moving of this material by old-fashioned hand truck methods.

PEAK EFFICIENCY—CMR operates at peak efficiency at all times! A constant air quantity and pressure is maintained at each spindle to assure: (1) maximum frame cleaning; (2) positive pick-up of ends; (3) minimum operating HP; (4) least deviation of temperature and humidity.

Collector units build up air resistance due to material collecting on screens. Because of this you have: (1) changes in air volume at spindle orifices; (2) changes in pressure at spindle orifices; (3) increased operating HP.

CMR is as essential in today's mill as the elevator was twenty years ago. Mills are now converting to CMR. If you have any other system in your mill, you should consider Pneumafil CMR, the best buy in mill modernization.



*This is what 800,000 lbs. of fluffy cotton looks like when compared to a 6 ft. man. It is the fly and ends down fibers that will be removed and carried by hand trucks from a Pneumafil Unit System over the next ten years. (100 frames spinning 30's yarn, medium high draft, at 30 ends down per 1,000 spindle hours.)

Pats. & Pats. Pend.

PNEUMAFIL CORPORATION

CHARLOTTE 8, NORTH CAROLINA

Atlanta, Ga., Needham Heights, Mass.

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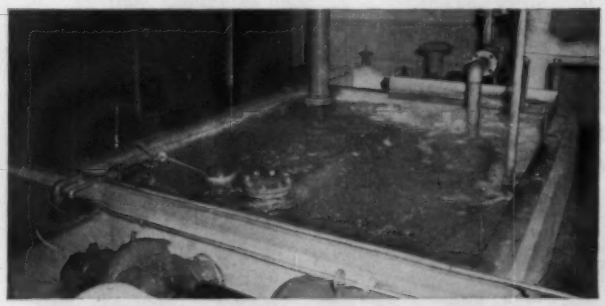
Why Owens-Corning Fiberglas chose

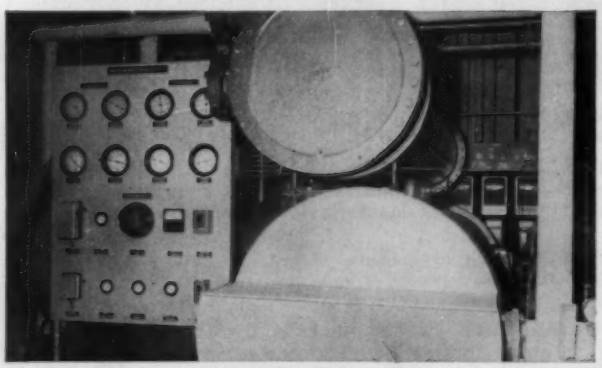
AMCO CENTRAL STATION AIR CONDITIONING

at its Huntingdon, Pa. Plant

Air distribution ducts and zone control atomizers in twisting room at Owens-Corning Fiberglas, Huntingdon, Pa. Widely spaced grille bars and snap-on latches allow quick, easy cleaning and maintenance.



Chilled water reservoir receives excess water from air washers, then recirculates water through chillers as needed.



Refrigeration equipment (chiller at bottom, condenser at top) with indicator and control panel designed and installed by AMCO.

If you want the facts about textile mill air conditioning — central station, unit dry-duct or ductless evaporative cooling — with the advantages and limitations of each system detailed, write for Amco's booklet "Air Conditioning for the Textile Industry". Or better still, ask Amco to recommend the system best suited to your needs. No obligation.

CLOSE-CONTROL HUMIDIFICATION

Owens-Corning, to assure greater operating efficiency throughout its mill, installed an Amco dual (split) system. This system calls for a central station unit augmented by room atomizers which permit the different manufacturing areas to be controlled *independently*, at any point, between 40% and 65% relative humidity.

CLEAN, CONDITIONED AIR

Fresh and recirculated air is thoroughly cleaned and conditioned with the right amount of moisture before distribution by the duct system. Room atomizers raise the moisture content to the level desired for each room, thus assuring ideal conditions for the particular manufacturing process.

CONSTANT YEAR-ROUND TEMPERATURE

Air passed through chilled water spray helps to maintain a year-round 78° F temperature. A total of 550 tons refrigeration capacity keeps work areas independent of outside weather.

ECONOMICAL OPERATION

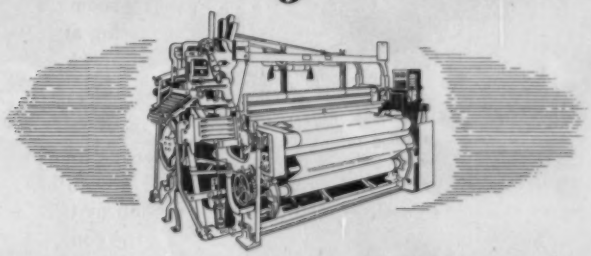
A washer bypass takes care of below-maximum heat loads, saving on steam costs. This Amco system also uses steam coils to heat air for supplementary warmth when the weather is extremely cold or when machinery loads are very light.

Exterior view of central station apparatus house at Owens-Corning Fiberglas Corp.

AMERICAN MOISTENING COMPANY, Cleveland, N. C. *Branches:* Atlanta • Boston • Camden • Providence • Toronto

BE SURE

you get the TOP PERFORMANCE
that's built into every C&K LOOM



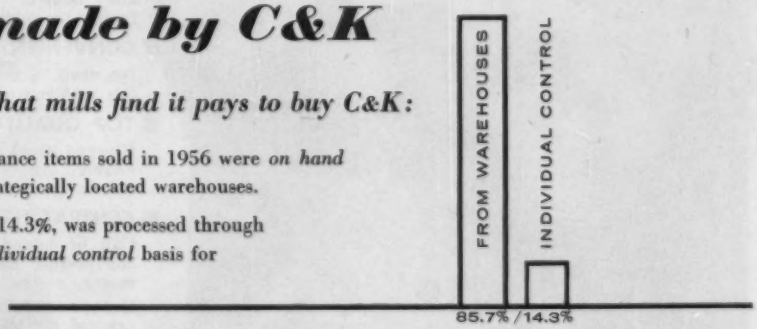
BE SURE

you use only LOOM PARTS
made by C&K

...and here's proof that mills find it pays to buy C&K:

85.7% of all maintenance items sold in 1956 were *on hand* and *shipped* from strategically located warehouses.

The balance, a mere 14.3%, was processed through C&K shops on an *individual control* basis for prompt shipment.



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THE WORLD'S LONGEST LINE OF AUTOMATIC BOX LOOMS

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Crompton & Knowles of Canada Ltd., Montreal, Quebec

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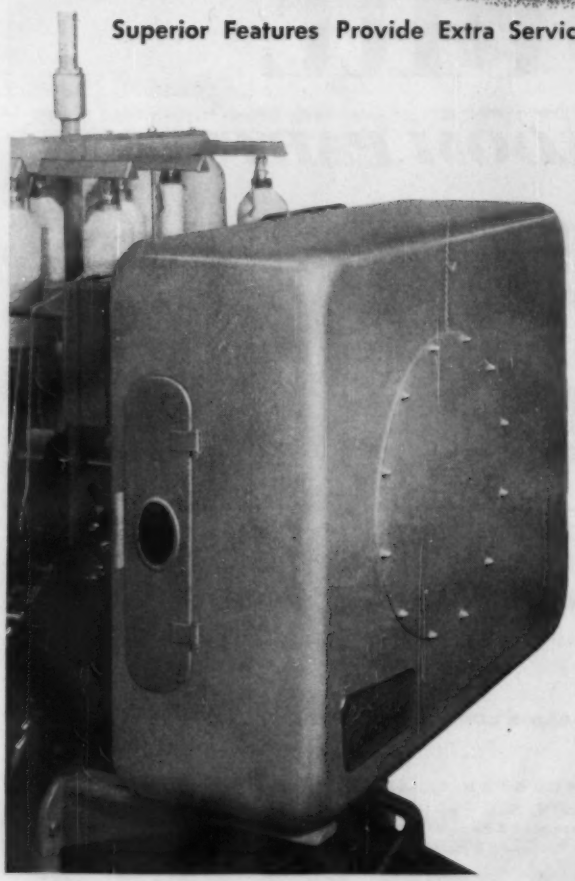
A New Product's Dynamic Record

Why The New Bahnson Collecto-Vac Was Purchased For 1,364,696 Spindles In Less Than Two Years

Superior Features Provide Extra Service For Collecting Broken Ends, Flying Lint



■ **ANODIZED ALUMINUM FLUTES**
No warping, cracking, or static build-up

■ **SCROLL TYPE FAN**
High velocity downward air discharge disperses motor alley heat or can be used to clean beneath frame; also facilitates addition of Central Heat Removal System.

■ **CONVENIENT ACCESS FOR MAINTENANCE**
No need to remove frame switches from unit to reach fan and motor.

■ **TOP QUALITY CONSTRUCTION**
Rugged steel collection box smoothly finished in baked enamel. Anodized aluminum flutes offered in choice of colors. Double capacity unit for serving two frames.

■ **CENTRAL HEAT REMOVAL SYSTEM**
Can be added to existing Collecto-Vac units without conversion. Removes heat from collection unit, frame motor, motor alley.
Bahnson CHR System obsoletes earlier concepts of central air handling.

Get detailed information on the Bahnson Collecto-Vac and Central Heat Removal System. Write us today!

Bahnson COMPANY
WINSTON-SALEM, N. C.

AIR CONDITIONING • HUMIDIFICATION
VACUUM COLLECTION • CLEANING • CREELS

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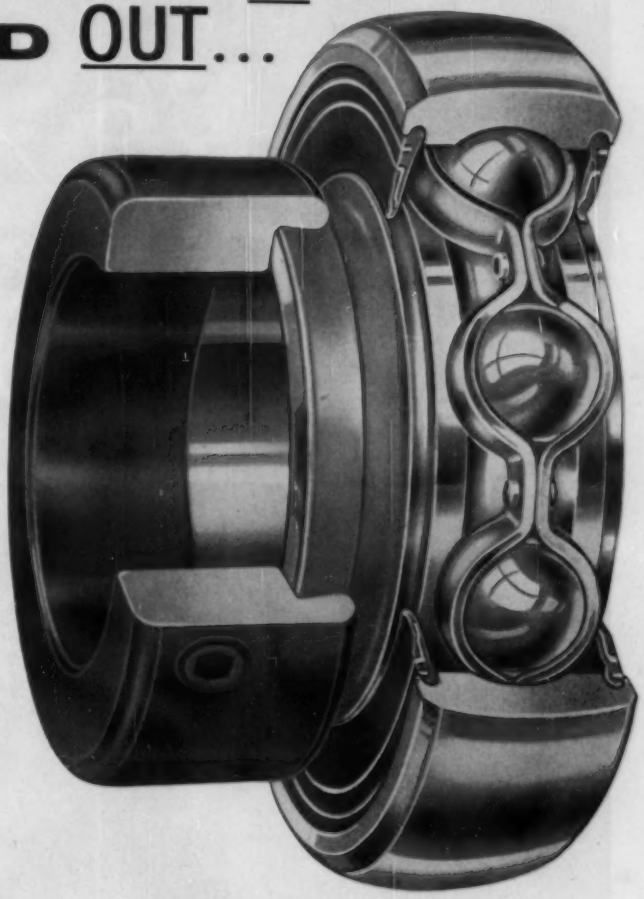
FACTS

about

NEW DEPARTURE BALL BEARINGS

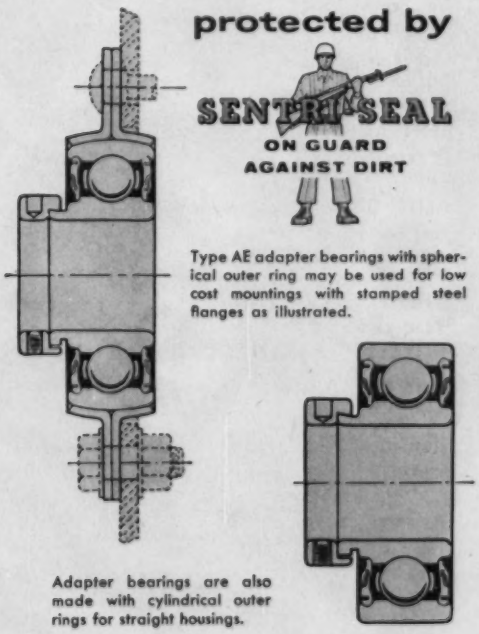
GREASE SEALED IN... DIRT SEALED OUT...



Grease stays *in* . . . dirt stays *out* . . . when you specify New Departure Type AE adapter ball bearings. That's because they're protected with Sentri-Seals, assuring highly efficient sealing at all speeds and under all bearing operating conditions.

These ball bearings are easily mounted, too . . . and at low cost. They eliminate the need for shaft shoulders, ground bearing seats or press fits, besides doing away with all need for separate seals or closures.

New Departure Type AE ball bearings may help you solve a bearing problem. Send for General Catalog S.



Type AE adapter bearings with spherical outer ring may be used for low cost mountings with stamped steel flanges as illustrated.

Adapter bearings are also made with cylindrical outer rings for straight housings.

With New Departure adapter bearings, installation is fast and easy, with no special tools required. The eccentric cam has a self-locking action when tightened in the direction of shaft rotation. Bearings with spherical O.D. accommodate any normal misalignment in various applications.

SEE "WIDE WIDE WORLD" SUNDAYS—NBC-TV

BALL BEARINGS MAKE GOOD PRODUCTS BETTER

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONN.

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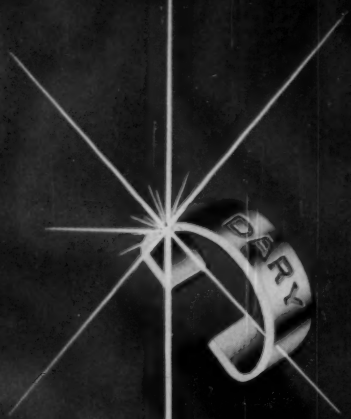

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TEXTILE BUSINESS

Textile World

APRIL • 1957

THIS MONTH'S HIGHLIGHTS

Labor Pressure Lets Up

•

Wool Prices Hold Steady

•

Capital-Spending Plans Ease

•

Carpet Profits at Lees

•

ACMI Problems Lighten

•

Rayon Use on a Plateau?

Labor Pressure Lets Up For Most Northern Mills

No serious labor trouble in the North is likely this year.

Workers at Forstmann Woolen Co., Passaic, N. J., threatened to walk out last month, but settlement was reached before the threat was carried out. And Bates Mfg. Co. indicated that it may carry its demand for a wage cut to arbitration.

These two cases may be the extent of hot spots in this spring's contract period.

Here's how things shape up in three industry branches:

•

• Settlement is at hand in cotton and rayon mills.

The pattern was set in an agreement between Berkshire Hathaway and TWUA. This contract had another year to run, but a reopening clause permitted renegotiation. Basis of the agreement is that no major changes in wage rates will be made but fringe benefits for hospitalization, sickness, severance, and retirement will be improved. Total benefits are 2½ to 3¢ an hour, effective April 15.

So far, only Bates is threatening to test the Berkshire Hathaway pattern. Union officials and most independent observers think that Bates' chances of success in arbitration are slim if the rest of New England accepts the pattern.

Deadline for agreement is April 15. The union is confident that by that time it will have agreements with most of the 100 or so cotton and rayon mills involved.

•

• Peaceful settlement with woolen and worsted mills is also probable since trouble at Forstmann was avoided.

Industrywide bargaining in this branch of the industry has been abandoned by TWUA. One of the main reasons was that since giant American Woolen Co. folded no other woolen or worsted mill can set a pattern that will be accepted.

Forstmann in particular is not in position to be the pattern-setter. In the last three years it has lost $6.5-million, and the strike threat was made in the face of a mill threat of permanent closing. A strike in any one of several other woolen or worsted mills would have better chances of success.

However, failure of a strike to materialize at Forstmann and the evaporation of workers' demands for a 15¢-an-hour wage increase and improved fringe benefits probably will have some influence on other negotiations.

The only concession won at Forstmann was a slight improvement in retirement pensions. With TWUA in no mood to risk a strong push for wage increases this spring, settlements along the lines of those made with Forstmann and with cotton and rayon mills are almost certain.

•

• Carpet and rug mills may have rougher going. TWUA has asked 14 mills in the North for a general boost in wages, amount unspecified so far, and an increase in fringe benefits for 15,000

employees. Business has been good in this branch of the industry, and conditions are more favorable for the union than in any other industry segment.

However, the growth of carpet manufacturing in the South has been spectacular, and the union undoubtedly will have to meet the mills' arguments that the current carpet boom is there, not in the North.

Wage rates now average $1.95 an hour. Fringe benefits plumped for include doubling daily hospital benefits and increases in the number of holidays with pay, vacation days, life insurance, weekly sick benefits, severance pay, and pensions.

The mill with most at stake is Mohasco.

In its first year of operation after its organization early last year by a merger of Mohawk Carpet Mills and Alexander Smith, Inc., Mohasco turned in a profit of $3,653,638 on sales of $105,499,443—about 3¢ on the sales dollar.

Pressure for profits on Mohasco comes from the fact that from Alexander Smith it inherited a $30-million tax-loss credit. It had five years to earn $30-million to take advantage of that credit. With one year and $3.6-million gone, it now has four years to make up the other $26.4-million.

If the union settlement makes it more difficult for the Mohawk Division of Mohasco to compete with the South, Mohasco will have to look to its Alexander Smith plants in the South to save the tax-loss credit before it expires.

Cautious U. S. Buying Steadies Wool Prices

U. S. wool buyers are lagging behind European and Japanese buyers in the booming wool market in Australia and New Zealand. With the season well under way, U.S. demand has been lighter than usual in auctions and has shown most of its strength in private sales by dealers and brokers.

This caution is a puzzle to "down-under" wool men. World supply and demand are generally thought to be in close balance, and the supply of wool in the U.S. is low.

The U.S. Government stockpile has been decreasing, and U.S. growers now produce only 5½% of the world clip, compared to 10½% during the war. With woolen, worsted, and carpet mills increasing output nearly 20% in 1955, 10% in 1956, and an increase likely this year, wool stocks are under strong pressure.

This wait-and-see attitude of wool buyers is only part of the general caution now abroad in U.S. business. From small users of textiles to major users of steel, commitments are slow and small.

•

Here's how it works out for wool mills: their business is good but perhaps softening in spots, men's wear for example. And

Synthetics Outlook Brightens

Conservative mill production of rayon, acetate, and nylon fabrics since early last fall will pay off soon. Price advances of 5% to 10% are expected when summer and fall buying gets in full swing.

Last month cutters stepped up their orders beyond fill-in requirements in constructions such as nylon taffetas and sheers, rayon gabardine shirtings, and cotton-Cupioni dress goods.

No run-away demand is expected, but inventories held by both mills and converters are considerably below stocks held at this time last year. With summer and fall buying just getting under way, mills expect better sales this season.

Checks with several mills on these fabrics indicate that orders are already picking up.

•

Improved conditions are attributed to restrained mill production.

At Labor Day last year, much of the mill capacity on these fabrics was shut down for a week. Since then, production has been held more in line with demand. Many looms were switched to other fabrics.

Quarterly production shows what happened. In the first three quarters of 1956, output of 100% filament rayon, acetate, and nylon fabrics was 297,459,000 yds., 275,969,000 yds., and 237,285,000 yds.

Output of 100% spun-yarn fabrics was 114,124,000 yds., 85,571,000 yds., and 71,960,000 yds.

•

Mills are looking for 1957 to follow a reverse pattern from last year. Where 1956 started out good and foundered about midway, this year began with prices and production rate low but almost certain to improve.

Wage increases late last year and higher materials costs early this year have made fabric prices too low. An increase up to 10% is needed for satisfactory mill profits. Normal seasonal buying can correct this situation.

there's too much uncertainty around them. Many cotton and rayon mills have cut back production. Other strong business indicators, such as autos, steel, and home building, are down. The Administration itself can't decide whether inflation or deflation is threatening.

In these circumstances, wool users consider caution only good business until some economic fog clears.

Nevertheless, Australia's and New Zealand's wool business remains the brightest since the scramble for wool skyrocketed prices during the Korean war.

The price of apparel wool on the Australian market has been going up since last Easter and is now 25% above last year's average. The clip is up 5½%, mainly as a result of better control of rabbits and a better season for pastures. Sheep population is up from 130-million in 1955 to 136-million now.

The picture is about the same in New Zealand. Prices for crossbred wools are about 10% higher than last year, and the total clip is up 2% as a result of a good growing season and aerial fertilization of pastures.

●

Wool prices are not likely to go much higher, wool men think. Therefore U. S. buyers can't see that they are taking any great risk in leaving wool on the market a little longer.

The Suez crisis did force prices up earlier in the season, but that stimulus passed before any real surge of buying developed. Japan has increased her budget for wool imports, but the increase is not likely to cause much pressure on prices.

All told, U. S. buyers themselves are the key to market pressure in Australia and New Zealand. If they continue their caution, prices will hold relatively steady. If they make a run on the market, prices will take a serious jump.

Planned Capital Spending Eases in Second Quarter

Capital expenditures by mills are expected to ease off in the second quarter as a result of cut-backs in production and slimmer profits.

The Government estimate is $98-million, compared to $103-million in the first quarter. The two quarters combined are placed at $201-million, compared to last year's $234-million in the same period.

This trend parallels that in the automobile industry. Where mill expenditures for 1957 are expected to be 18% under last year, a drop of 23% is estimated for the automobile industry. These two were the only major industries estimated for significant decreases by the Securities & Exchange Commission in its March report.

Most observers expect the second and third quarters to be the low swing of the textile year. With more spending power concentrated in cotton and rayon mills, pickup later in the year will depend largely on how successful current production cut-backs in cotton and rayon mills are in firming markets.

Men's Wear From Italy

New competition for U. S. mills is developing in Italy. Men's suits and topcoats, as good as absent from the American market until now, will try for a foothold this year.

About 6,000 suits and coats in lightweight all-wool and silk-and-wool fabrics will come from the Rivetti factory in Turin. Price ranges will be $65 to $110 for suits and $75 to $125 for topcoats.

If experience with Italian fabrics, styling, and tailoring of women's wear is a criterion, Rivetti may become an important factor in men's wear.

In the last three years, cotton blouses, wool and silk-and-wool dresses and suits, and all-silk dresses from Italy have found a growing market.

Rivetti began preparations three years ago for its shot at the U. S. men's-wear market. It imported designers from the U. S. to adapt its Italian styles to American sizes and preferences. So far, only a few hand-tailored garments have been made, but the factory is ready now for volume production.

Alert to U. S. style trends, Rivetti is concentrating on conservative styles and colors in soft-finished fabrics.

Sheets, Pillowcases Are Tight

Sheets and pillowcases will remain in short supply throughout the second quarter. Mill production is reported sold out for the period.

Auto-Fabric Use up

Automotive-fabric consumption—the largest end use of textile goods—is running ahead of last year.

By mid-March, 1,523,070 cars had been built, 2.7% more than last year's 1,482,664 in the same period.

Shifts in fabric consumption by the Big Three auto makers were: General Motors, down 14%; Ford, up 23%; Chrysler, up 45%.

TEXTILE BUSINESS

Wool-Fabric Imports To Drop

Purchases of imported woolen and worsted fabrics are dropping off in anticipation of a rise in the tariff rate in August or September.

An order issued last Sept. 30 by President Eisenhower provides that the ad-valorem rate increase from 25% to 45% when imports reach 5% of the average annual U. S. production in the preceding three years.

Besides the ad-valorem duty, there is an additional duty of 37½¢ a pound that applies whether the ad-valorem rate is 25% or 45%.

The cut-off point this year has not been announced, but it probably will be about 14-million pounds.

Nearly a third of the poundage expected at the 25% rate came in during the first quarter. That's almost double the normal volume.

Since the second quarter is usually the period of highest imports, it's almost certain that commitments already made for first-half delivery will practically exhaust the 25% ad-valorem quantity.

Some importers are already switching to lightweight goods so that more yards, and greater dollar volume, can be imported.

Industrial Fabrics Slow

Industrial-fabric sales are still largely for quick delivery and are likely to remain on that basis for the second quarter.

Although mill production has been cut 15% to 20% below the rate last fall, stocks are reported to be still high and goods readily available.

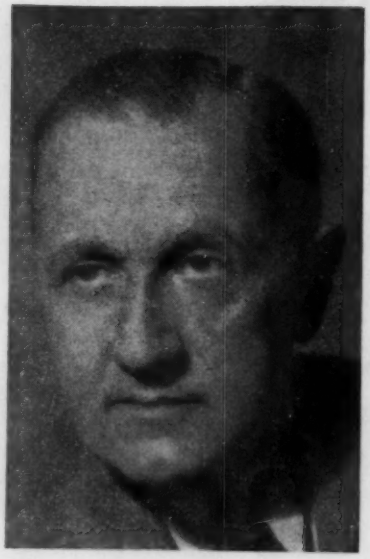
Heavy users, such as auto, shoe, furniture, and canvas manufacturers, are buying cautiously, mostly for fill-in requirements.

Mills expect these conditions to continue and prices to remain under pressure until the supply is reduced.

That could occur quickly if the spring pickup in sales expected by automobile, canvas, and furniture manufacturers takes place.

Without an unexpected surge of buying by heavy users, stocks should be reduced to a healthier level by midyear, and some price improvement should take place.

At James Lees & Sons— Profits in a Tough Business



JAMES LEES' J. L. EASTWICK. "No time to coast in this business."

High sales alone do not add up to corporate health, carpet manufacturers found out last year. With 1956 sales at an all-time high, some carpet mills no more than reduced their deficits and others showed only slim profits.

James Lees & Sons was an exception. On sales of $76,555,043, it turned in the comfortable pretax margin of $5.04 a share —its highest earnings since 1950 and its third highest of the last decade.

Of its two biggest competitors, Bigelow-Sanford showed a per-share profit of $2.64 on sales of $84,706,943 and Mohasco eked out only $1.08 on sales of $105,499,443.

James Lees is an habitual profit-maker. It hasn't come under $3.08 per share in the last nine years. In that period, Bigelow-Sanford has been in the red three times, Mohasco five times, and Artloom four times.

Lees' sales have almost doubled from 1947's $40-million, book value has doubled, and a common-stock dividend of $2 a share has been paid every year.

In a study of outstanding successes in textile business, two factors come up over and over:

- Someone at the top is dynamic and optimistic.
- He and his directors believe that to make money they have to spend money—preferably out of profits.

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At James Lees that someone is its 60-year-old president, Joseph Lees Eastwick. With the bounce and vigor of a 40-year-old, Eastwick gives the impression that he knows what to do and how to do it.

In the 10 years preceding 1956, Lees spent $29-million for new

plants and modernization of existing plants. In 1956, another $9-million went the same way.

Knowing where, when, and how to spend money for improvement is as important as having the money and being willing to spend it. **In this knack, also, Lees has been outstanding.**

The company started in 1846 in Philadelphia as a woolen- and worsted-yarn spinning and dyeing plant. In 1926, it went into the carpet business. By the early 1950's, this part of the business was so much more profitable than the yarn business that the old yarn mill was shut down in 1955.

Starting in 1935, Lees was one of the mills that led carpet manufacturers in seeking more favorable conditions in the South. It set up a plant in Glasgow, Va., and since then has spread into North Carolina and Georgia.

When tufted carpets became important, Lees moved into that field also. Starting out by switching part of the old Bridgeport plant to tufting, the company is now moving rapidly into this field.

Last year it started up a new yarn mill at Dahlonega, Ga., and is now doubling its capacity. A new tufting plant at Rabun Gap, Ga., is getting into production.

To increase capacity also in woven carpets, Lees is building a new carpet-weaving mill at Robbinsville, N. C. This mill and the one at Rabun Gap will be supplied with yarn by the mill at Dahlonega.

●

Most of the money for expansion and modernization has come out of profits. In 1955, the company did borrow almost $5-million to speed up its new-plant building program.

But repaying it is not worrying Eastwick nor his stockholders. With Lees' record, and its jump on its competitors, what's $5-million, they say.

Selling gets as much emphasis as expansion and modernization. Seven warehouses and 22 sales offices and showrooms put Lees' carpets near all important market areas in the country. Experts in styling, decorating, and merchandising help retailers with their carpet sales.

In 1954, Lees increased its $62-million sales $9-million by a time-payment plan worked through local banks and home-loan associations. Lees guarantees the loans. So far, losses have been negligible.

Lees has no plans for diversifying beyond the carpet business. "What for?" Eastwick asks. "This business is fine."

Earnings per Share of Four Carpet Companies

	Lees	Bigelow-Sanford	Mohasco	Artloom
1948	$5.68	$5.41	$7.16	$2.66
1949	4.37	2.73	1.19	0 09
1950	6.22	6.11	2.05	2.08
1951	3.08	D2.49	D2.41	D0.15
1952	4.55	D1.44	D4.16	1.28
1953	3.76	3.32	D3.73	0.47
1954	3.31	D0.06	D4.49	D0.28
1955	4.05	2.29	D0.73	D0.20
1956	5.04	2.64	1.08	D0.08(3 mos.)

D—Deficit

TWUA Tries For Long-Term Gains

Pretty much stymied in current drives to organize or increase wages in textile mills, TWUA has started two moves for long-range improvements for its members. Last month the union:

- **Petitioned Secretary of Labor James P. Mitchell to establish a minimum wage of $1.165 an hour** for textile workers under the Walsh-Healey Public Contracts Act.
- **Started a campaign to establish a basic 35-hour week** in the industry with no reduction in earnings.

Here's how Washington and labor experts see the two moves:

Any final determination on raising the minimum wage under the Walsh-Healey act is at least a year away. The series of hearings and surveys necessary to determine "the prevailing minimum wage" would take that long.

The new bargaining goal of a 35-hour week is the forerunner of a general campaign by labor for a shorter work week. All major unions have indicated an interest in cutting back working hours eventually.

TWUA is believed taking the lead now because of its peculiar bargaining position in relation to other unions.

Some 342,000 jobs have disappeared in textile mills—largely organized—that have closed in the last 10 years. And TWUA now is fighting to avoid pay cuts or just about holding its own while other unions are winning wage increases.

The reasoning is that if the work week were shortened and the same pay scales kept, available work could be spread so that more union members would be working, but not at the expense of those now holding jobs.

Cotton Exports Jump

Cotton exports are soaring under the two-price system initiated last year. At the end of the first week in March, more than 5-million bales had been cleared for export. At the same time last season, only a little over 947,000 bales had been exported.

ACMI's New President Faces Quieter Problems

ACMI PRESIDENTS. Retiring F. E. Grier (left) was in the thick of the quota battle. L. G. Hardman (right) will check results.

Pressing problems are missing this week at the annual meeting of the American Cotton Manufacturers Institute in Palm Beach, Fla. For the first time in several years, members of the industry's biggest and most powerful association can relax and worry only about business.

The two main reasons are that the disturbing problems of Japanese imports [TEXTILE WORLD, Feb., pp. 17-19] and union organization in the South [TEXTILE WORLD, Feb., pp. 23-24] both are more or less quiet now.

The change to optimism from the pessimism of a year ago is striking. When outgoing president F. E. Grier took over, the industry was in the middle of its battle against mushrooming imports of Japanese cotton goods.

This year the new president, 48-year-old Lamartine Griffin Hardman, Jr., of Commerce, Ga., can keynote his acceptance speech with, "There's a new spirit evident among the executives of this industry. That spirit can best be described as determined optimism, born of a belief in the industry's ability to make rapid and large gains in the decade ahead."

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But some of the optimism is qualified by an "if." When ACMI in January put its stamp of approval on the arrangement for "voluntary" control of exports by Japan, it called the plan "basically sound and workable . . . if adequately enforced."

This year is the trial period, and "Lam" Hardman's No. 1 job is to keep a sharp eye on how well the Japanese agreement is lived up to.

Like all ACMI presidents, he has wide experience in both business and textile-association work and an able organization be-

Print-Cloth Demand Low

Print cloth is now in its slowest season of the year. Cut-backs earlier this year have not had time to reduce stocks significantly, and mills are not expecting real improvement in prices or demand until the third quarter.

The seasonal pattern in print-cloth sales is a slow second quarter, with a pickup toward the end of the quarter. Timing of the pickup varies from April to July.

This year it is expected late. Buying probably will continue sluggish until stocks are reduced or the demand for fall and winter fabrics develops.

The picture could change quickly with a strong run of buying. But such a run is not in sight, and little more than fill-in buying is expected for this quarter.

Waxed Yarn in Demand

Sales-yarn mills report a sharp increase in demand for waxed knitting yarns for outerwear and cotton hosiery.

Available from some mills for many years, waxed yarn got a boost two or three years ago when knitters found it easier to handle on new raschel and interlock machines.

Last year, mill shipments of waxed yarn about doubled the 1955 volume, and another sharp increase is expected this year.

Consumer Sales Hold Up

Consumer buying of textiles, reflected in department-store sales, ran 1% to 2% ahead of last year for the first quarter of 1957.

That continues a pace set last year. In 1956, department-store sales were 6% to 7% ahead of 1955.

Since about two-thirds of the textile goods made is sold directly to consumers—compared to about one-third that goes into industrial fabrics—department-store sales are one of the most critical indicators of textile business.

hind him. If the import agreement proves ineffective, the battle for congressional action will be renewed.

Hardman's second objective is set as "the betterment of the industry's public relations." Holes in that armor showed up in the Japanese-quota battle. According to Hardman, "a determined assault on the public-relations front" will be made this year.

Rayon on Long-Term Plateau?

A round of staple-rayon price cuts was started last month by American Viscose and Courtaulds. In the first change since the fall of 1955, per-pound prices dropped from 32¢ at Viscose and 31¢ at Courtaulds to 29¢. Reason given: "competition."

No explanation of the competition was made; but it obviously is from other fibers, not other rayon producers. Prices of most other synthetic fibers advanced in November and December, and last month imported rayon was going at 29¼¢—about a normal spread under domestic rayon. And the price cut was quickly followed by Viscose's and Courtauld's U.S. competitors.

The trend of rayon consumption has been slightly down from the 1950 high point except for the last half of 1955 and the first half of 1956. Until 1950, it had enjoyed a remarkable climb from the early 1920's.

With the 1955-6 bulge included, rayon has been on a consumption plateau at about 1.2-billion pounds a year.

Last year's total wound up about 17% below 1955, and rayon's percent of total fiber consumption slipped from 21.2% to 17.4%.

This year started with the decline continuing. Total rayon and acetate shipments for January and February were 8½% under last year, with the biggest portion of the drop coming in February. Hence, the present price cuts.

•

Many experts believe that rayon's 1950-56 plateau is a long-term leveling out. It is now one of the old fibers, and growth is not likely to be spectacular.

Some observers think that technical improvements of the fiber —notably wet strength—will ultimately give rayon another upward spurt. Others think this development is not likely.

Some improvement and broadening of uses undoubtedly will be made. But a drastic change in one fiber property is always at a sacrifice of others, and not much change of intrinsic properties is likely. It therefore seems logical that the use of rayon has reached a plateau and further growth in percent of total fiber use will be neither steady nor sensational.

Most rayon producers seem to agree. Nearly all new fiber plants in late years have been for the production of nylon and the newer synthetics. And big producers have been expanding in other products—for example, American Viscose's expansion in cellophane and in Acrilan and nylon through Chemstrand.

It is no mark against rayon if it has leveled out. All growth levels sooner or later.

If rayon holds at 17% to 20% of total fiber consumption, it will still be in an enviable position. With population growth and per-capita-consumption increase, a fifth of the market is big business.

Wool Softens

Wool yarn and fabrics softened a little last month.

Production early this year ran about 5% above last December but about 12% under a year ago, and mills generally were not able to pass on increases in costs.

Wool-yarn knitters held back from the market in the expectation of price cuts, and weaving mills felt the effects of heavy imports of woolen and worsted fabrics.

Brightest spot is carpet mills. Inventories are lighter than normal, and most mills are running against orders. Chief demand is for wool and wool blends.

A sharp pickup this month is expected as the seasonal increase in home building gets under way.

Three Mills Expand

Three expanding textile companies made more mill purchases last month.

• **Cone Mills Corp.** bought controlling interest in the converter Cortley Fabrics Co. and its affiliates Clarion Textile Corp. and Careloom Cottons, Inc. The former owners retained a stock interest and will continue to operate the firm.

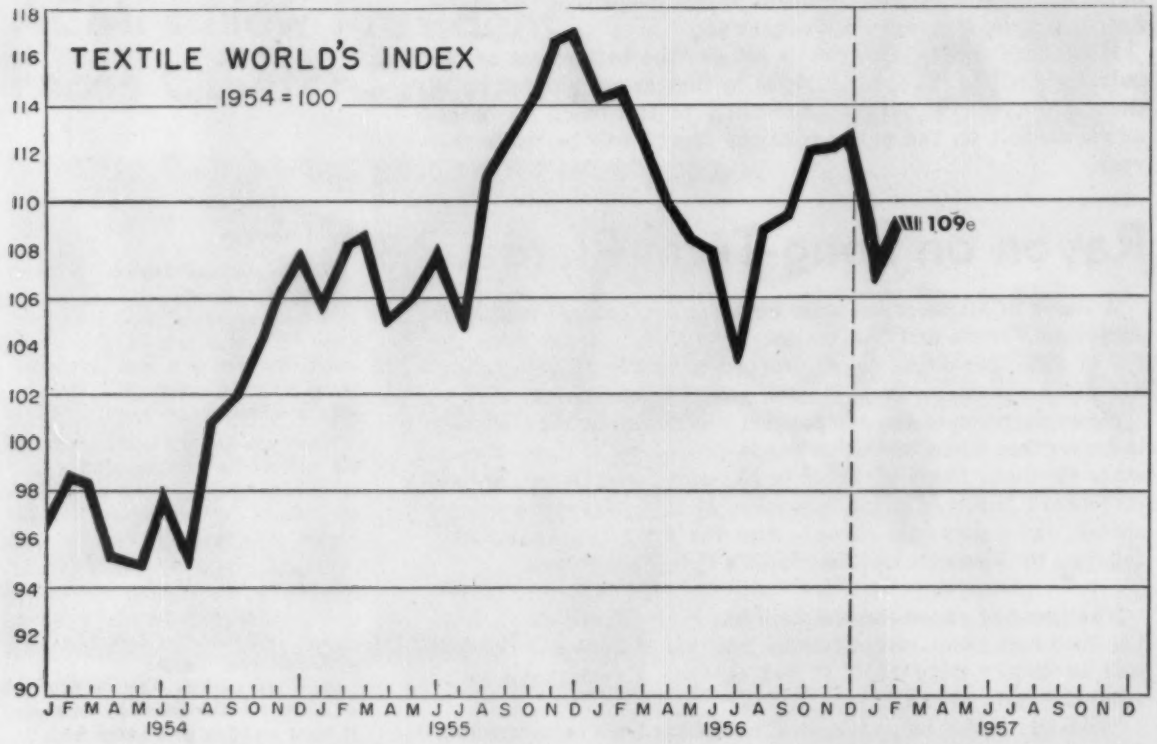
• **Mount Vernon Mills** bought Lawrence Duck Mills, Lawrence, Mass., maker of dryer belts. Mount Vernon will take over active management.

• **Botany Mills, Inc.,** bought Premier Knitting Co., knitted-outerwear manufacturer. Capacity will be increased 25% at the plant in Blackwood, N. J.

Worsteds, Silks Gain for 1958

All-worsted and all-silk men's-wear fabrics will be stronger in 1958 spring styles. Many looms will be changed from wool-synthetic blends.

This trend is already showing up in styling for next year. One important factor in the switch is said to be silicone finishes.



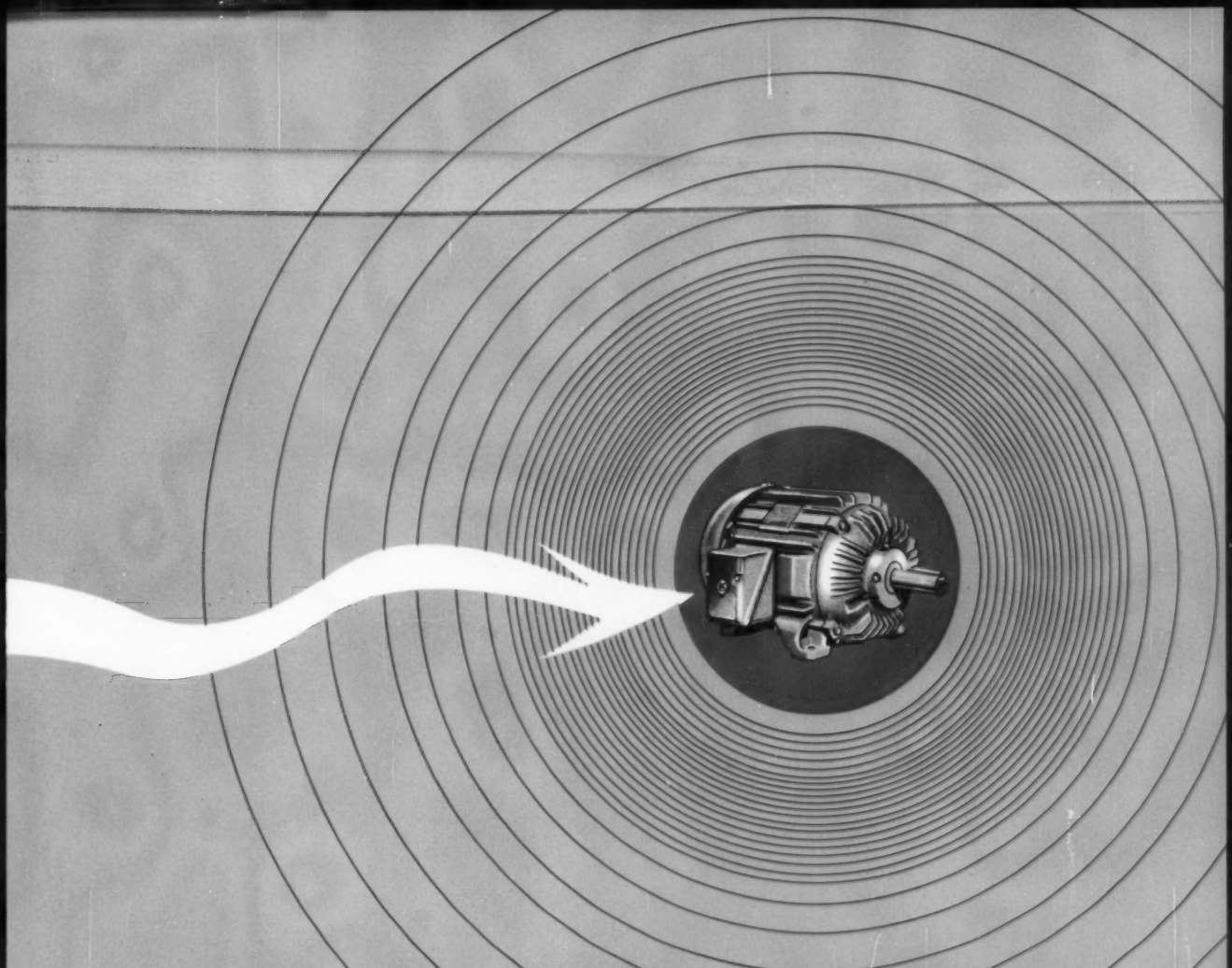
Index of manhours worked in the textile industry adjusted for changes in productivity

Textile World's Monthly Indicators

	Latest Month	Last Month	Year Ago
Textile World's Index (1954 = 100)	**109**	**109**	**113**
Employment (thousands) B.L.S	1,019	1,203	1,081
Production Workers (thousands) B.L.S	929	928	989
Weekly Earnings B.L.S	$58.50	$58.26	$57.51
Hourly Earnings B.L.S	$1.49	$1.50	$1.42
Weekly Hours Worked B.L.S	39.2	39.1	40.5
Production Index (1947–1949 = 100) F.R.B	111	106	119
Wholesale Price Index (1947–1949 = 100) B.L.S	95.7	95.8	96.0
Manufacturers' Sales (million $) Commerce	1,095	1,148	1,100
Manufacturers' Inventories (million $) Commerce	2,653	2,679	2,485
Inventories to Sales Ratio	2.42	2.33	2.26
Exports (Million $) Commerce	210.0	132.8	82.3
Imports (Million $) Commerce	78.2	75.0	83.9
Stock Price Index (1935–1939 = 100) Standard & Poor's	216.5	234.8	267.8
Failures (number) Dun and Bradstreet	10	10	13

National Economic Indicators

	Latest Month	Last Month	Year Ago
Industrial Production (1947–1949 = 100) F.R.B.	146	146	143
Consumer Prices (1947–1949 = 100) B.L.S	118.7	118.2	114.6
Wholesale Prices (1947–1949 = 100) B.L.S	117.0	116.9	112.4
Population (millions) Census	169.7	169.4	166.8
Unemployment (thousands) Census	3.1	3.2	2.9
Employment (millions) Census	63.2	62.6	65.6
Personal Income (billion $) Commerce	335.2	334.0	316.7



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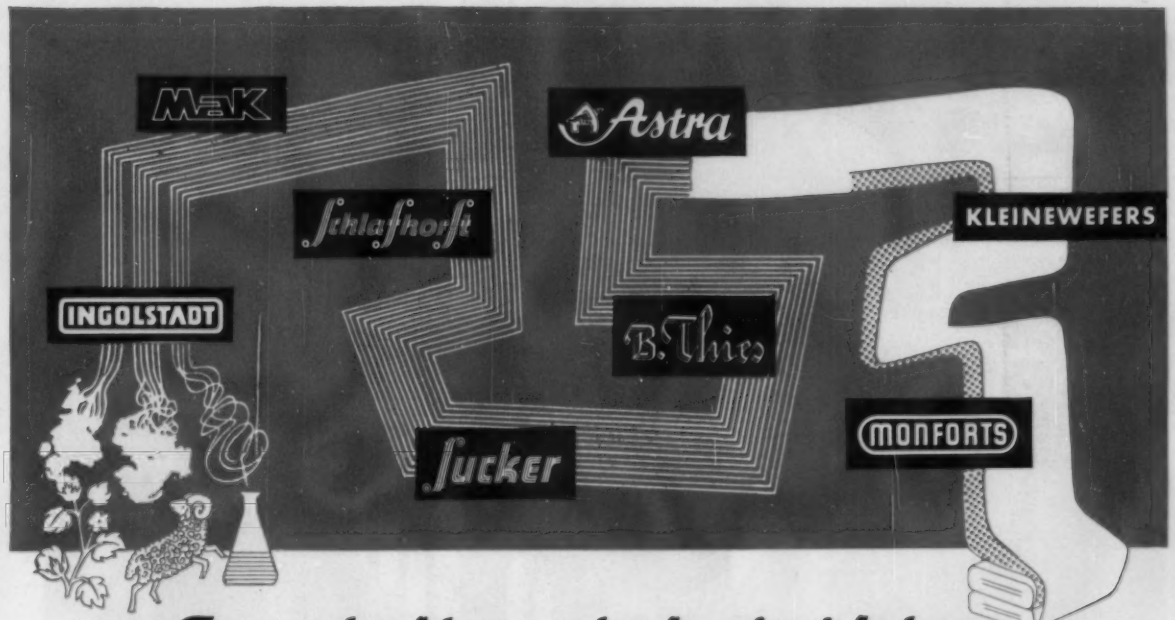

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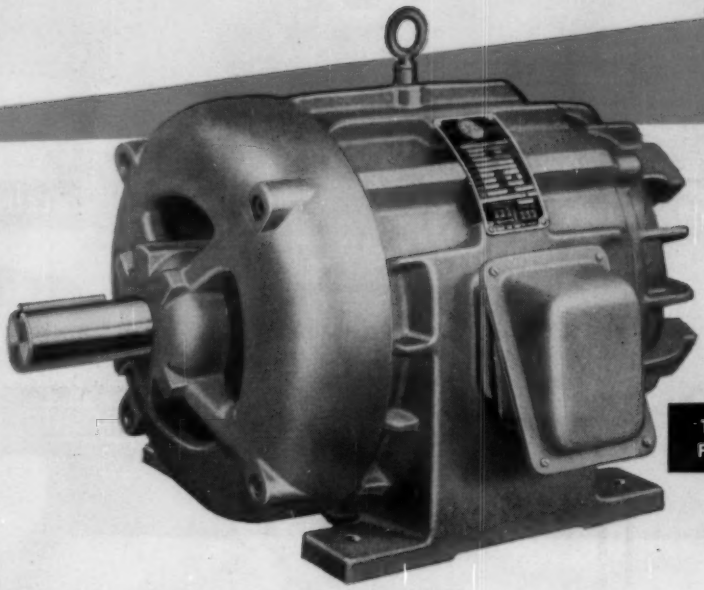

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new DIEHL streamlined design

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Here's a new textile mill motor which has the efficiency, performance characteristics and service factor of an open-type motor with the added advantages of totally-enclosed, fan-cooled construction . . . *yet it's no larger in size than a standard open-type motor (see Fig. A).*

Inside and out, the DIEHL Type "DIL" Motor is designed and built for top performance, maximum protection, long life, ease of installation and ease of maintenance in textile service. Note the heavy duty drive end bearing design, Fig. B, and the versatility in making lead connections, Fig. C.

The Type "DIL" Motor is adaptable to all types of textile machinery and, conforming to NEMA frame sizes and mounting dimensions, may readily be installed beneath spinning and twisting frames.

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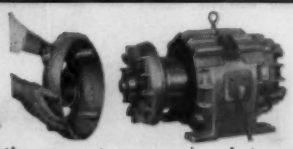

Fig. A

Note the compact space-saving design of fan blade and end-cover, the fan blade serving as part of the motor enclosure. Rotor is partially withdrawn to show the unitized construction of rotor and blade which assures maximum transfer of heat to the ventilating system.

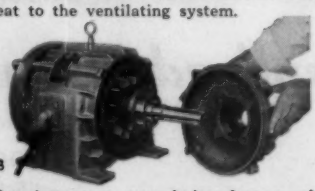

Fig. B

Another important new design feature which helps make this motor the outstanding choice for purchasers of textile mill motors is the locked-in, pre-lubricated heavy duty ball bearing, on the drive end, which assures maximum bearing life.

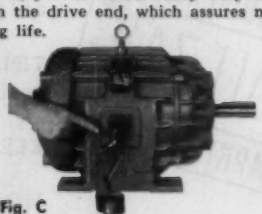

Fig. C

Regularly supplied with standard leads and terminal box. Obtainable with 5-foot type "ST" vinyl-covered cable, oil and watertight fittings, and knife-type disconnectors on the motor terminal leads for convenience in servicing, at slight additional cost.

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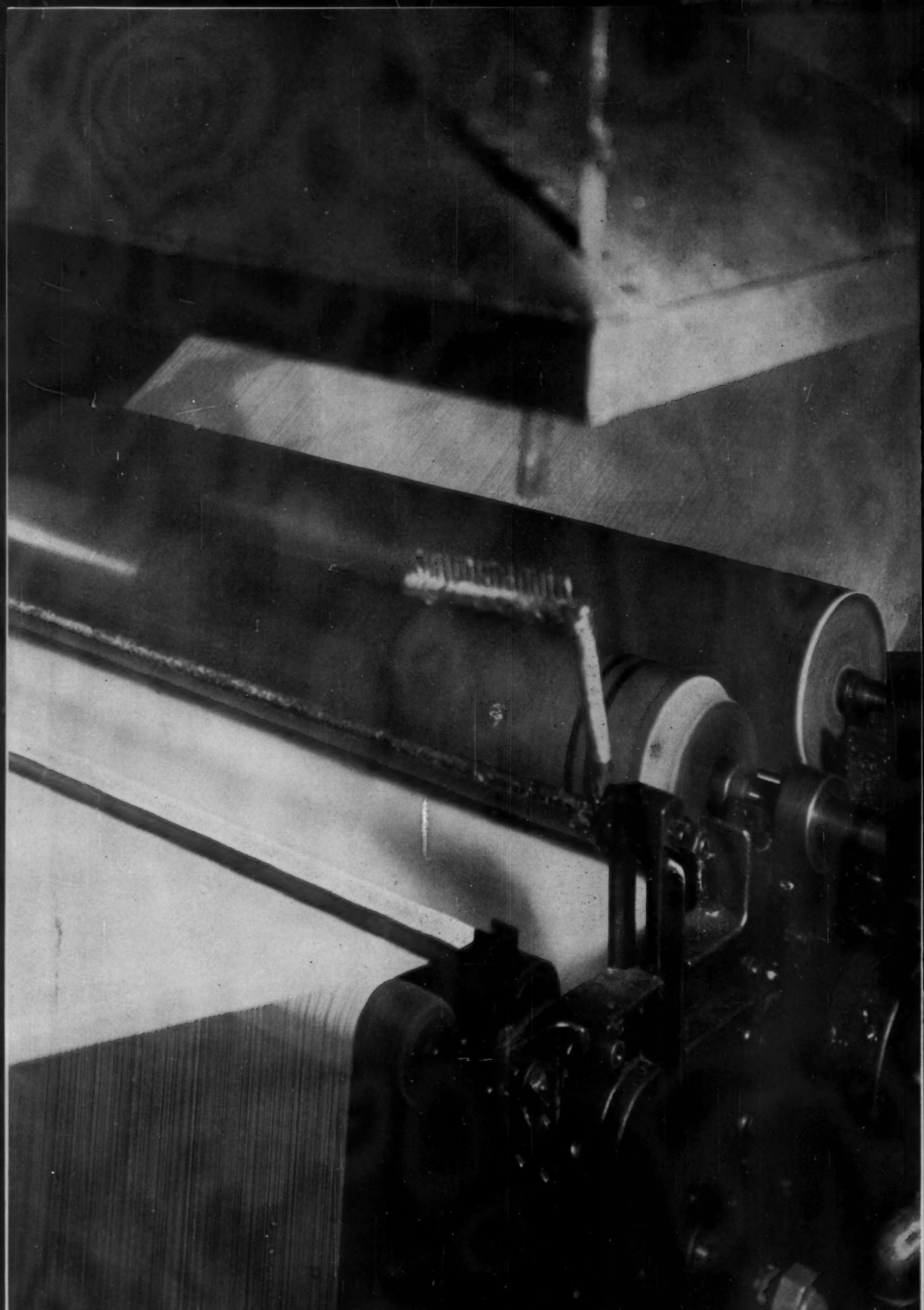

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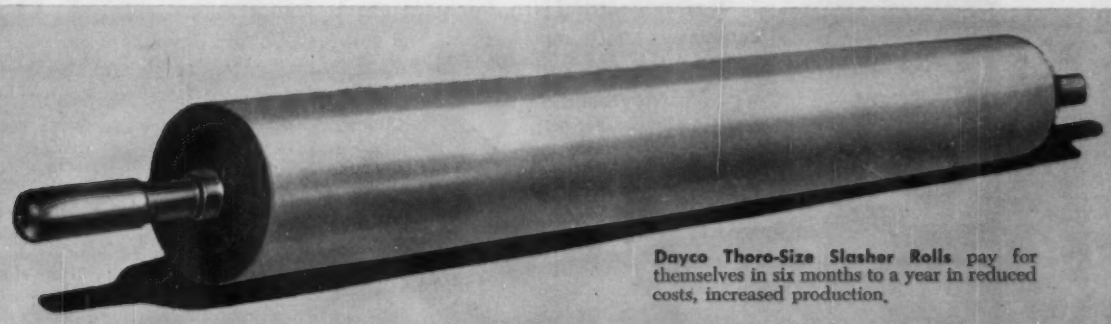
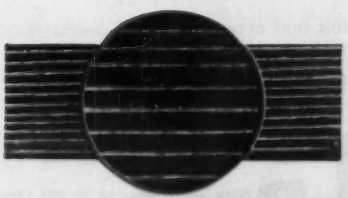
Most important, Dayco Slasher Rolls eliminate the material costs, slasher downtime and labor required to maintain blankets. In addition, more precise metering of size results in considerable savings in starch costs. And, Dayco Slasher Rolls pay for themselves in reduced costs within six months to a year.

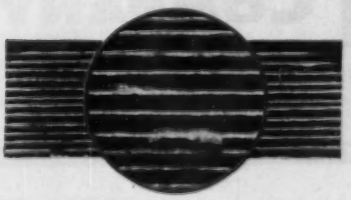
The result of more than eleven years of research, Dayco Thoro-Size Slasher Rolls are unaffected by oils or chemicals, retain their resiliency for long periods of time, and can be easily resurfaced for double and triple service life.



Dayco Thoro-Size Slasher Rolls pay for themselves in six months to a year in reduced costs, increased production.



Clean, uniform sizing proves superior performance of Dayco slasher rolls



Irregular sizing denotes inadequate control of ordinary slasher rolls

Your Dayco representative will stop in to see you soon. Ask him for details on how Dayco Thoro-Size Slasher Rolls can help you step up slasher speeds, get more uniform yarn and cut maintenance costs. Or write The Dayton Rubber Co., Textile Division, 401 S. C. National Bank Building, Greenville, South Carolina.

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Dayton Rubber

Dayco and Thorobred Textile Products for Better Spinning and Weaving

improve

warping of fine denier nylon!

eliminate uneven
tension and snagging

USE THE NYLON PIRN
WITH THE NEW

SONOCO *slip sleeve*

SONOCO research and engineering has solved the problem of excessive drag on the last few winds—important in warping fine denier nylon for weaving or tricot knitting. The SONOCO Slip Sleeve, on the nylon pirn, eliminates uneven tension at the transfer caused by surface imperfections. The new SONOCO Slip Sleeve is a hard, rigid tube with a permanent ground finish.

- **stays free of blisters**
- **unaffected by humidity**
- **delivers yarn at a low even tension from start to finish**
- **eliminates variable tension which causes streaks in the cloth**
- **no drag on the last few winds**

Save time and money—insist that your fine denier nylon be packaged on the pirn with the new SONOCO Slip Sleeve.

See this and other SONOCO products on display

BOOTHS 507-508

KNITTING ARTS EXHIBITION • APRIL 29-MAY 3 • ATLANTIC CITY

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Heard the latest report on Becco Service?

Eight times around the world Becco Engineers travelled from plant and laboratory during the past year providing free technical service to Becco customers. Laboratory and pilot plant work have been done at Becco's plant in Buffalo for 164 additional mill customers. Becco has also given free consulting service to many other mills.

For more than 30 years Becco research has been applied to expanding the usefulness of peroxygen chemicals to American industry.

Becco pioneered in the application of hydrogen peroxide to the textile industry... developed and perfected the Becco type J-box, now dominant in the industry, with 70% more installations than any other.

Among other Becco developments are the Wet J-Box, Non-silicate bleaching, Flash bleaching, 15-minute bleaching and Single-Stage bleaching, each with its specific area of application to mill or bleachery needs. For information on any of these Becco developments, consult trained Becco field engineers or write and we shall arrange for a representative to call at your plant.

BECCO CHEMICAL DIVISION
Food Machinery and Chemical Corporation
Station B, Buffalo 7, New York

Buffalo • Boston • Charlotte, N. C. • Chicago
New York • Philadelphia • Vancouver, Wash.

CHEMICAL PROGRESS WEEK-APRIL 8-12

Progress in Peroxygens® **BECCO**

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

FMC CHEMICALS INCLUDE: **BECCO** Peroxygen Chemicals • **WESTVACO** Phosphates, Barium and Magnesium Chemicals • **WESTVACO** Alkalis, Chlorinated Chemicals and Carbon Bisulfide • **NIAGARA** Insecticides, Fungicides and Industrial Sulphur • **OHIO-APEX** Plasticizers and Chemicals • **FAIRFIELD** Pesticide Compounds and Organic Chemicals

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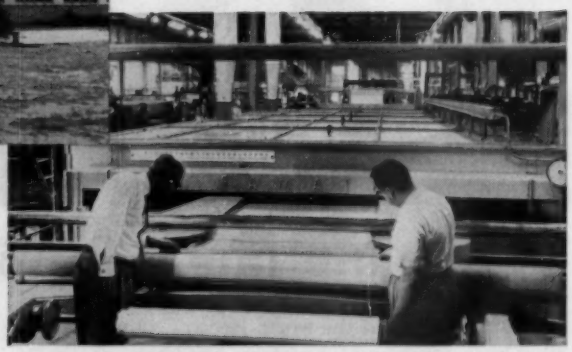
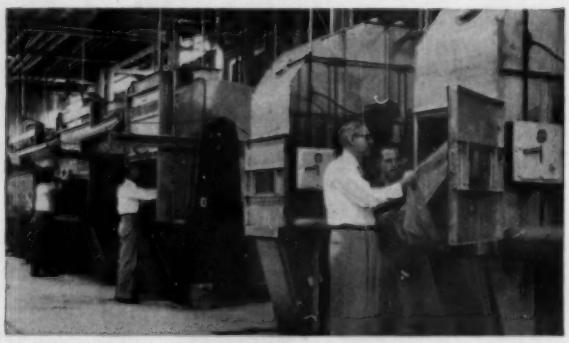
Celanese dedicates a great ... and affirms

Headquarters of the Celanese Development Center at Charlotte, North Carolina.

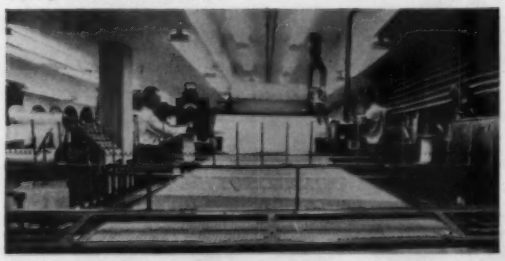


A Famatex Tenter frame for both knit and woven goods, finishes fabrics to final widths of 24" to 120".

For development of non-wovens, Celanese uses Curalator Rando-webber in line with spray booth and infra-red drying unit.



Dyeing and finishing laboratories employ dye becks capable of handling full production runs.



Eight can slasher works in conjunction with high speed beamers and modern looms.

Celanese

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new textile development center a marketing philosophy

Celanese is convinced that developing and promoting its fibers in relation to the needs of the industry is a practical, profitable and constructive marketing philosophy. It offers stimulus and stability to us—and to you.

That is why—on January 30th—Celanese unveiled at Charlotte, North Carolina, the Celanese Development Center—largest and most advanced development operation in existence.

Its outlook is industry wide. Its aim is to expand markets by creating new end uses for—and new methods of working with the Celanese family of fibers. Celanese welcomes inquiries and suggestions that fit in with its larger scope —that of over-all industry improvement.

Presided over by seasoned textile scientists and experienced production personnel—averaging over 20 years mill experience—all work is evaluated in *production* quantities. It stands in contrast to the industry's traditional trial and error pilot operations—offering you fiber, fabric and process data with most of the "bugs" removed.

In 160,000 square feet, using the industry's most modern equipment, Celanese scientists are now developing new end uses for fibers, as well as improved textile processing, dyeing and finishing techniques. And their findings are passed on to all segments of the textile industry.

There are five complete laboratories for spinning, knitting and weaving, non-woven fabrics, as well as finishing and dyeing.

A measure of its scope? In one laboratory alone are 45 looms capable of producing fabrics ranging from sheer voiles to industrial tarpaulins, 10″ to 76″ wide. While warps can be made in lengths from under 100 yards to 90,000.

The new Celanese Development Center is one facet of the overall Celanese program that goes from fabric development in our plants to technical assistance in yours, from the weaving to the wearing—a program unrivalled in this industry. Celanese Corporation of America, New York 16. Celanese®

Arnel® Triacetate • Fortisan® Rayon • Fortisan®-36 Rayon • Acetate • Viscose Rayon • Celaperm® Acetate • Celacloud™ Acetate

CONTEMPORARY FIBERS

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News about

B.F.Goodrich Chemical *raw materials*

denims in with whites?

Yes...Hycar-treated denims are colorfast

DENIMS sized with Hycar Latex are really colorfast—even in the first laundering. They can be washed along with fine white fabrics with no danger of discoloration.

The greater durability of Hycar-sized denims also makes a big hit with users. Tests made under Federal Specifications CCC-T-191-B show that sizes made from Hycar Latex dispersions increase wear resistance of cottons as much as 300% more than starch sizes. This strength is maintained during repeated launderings.

For further information write Dept. EV-2, B. F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

USE HYCAR LATEX HERE FOR BETTER TEXTILE PROPERTIES

Warp size . . . lasting abrasion resistance for cotton, rayon, denim
Aftertreatment . . . reduced crock, improved wear life
Dye Bath . . . more uniform colors
Starch Blend . . . improved rayon seam strength
Resin Blend . . . greater crease resistance in cotton, rayon
Bonding Material . . . for non-woven fabrics, screen printing inks

Hycar
Reg. U.S. Pat. Off.
American Latex

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

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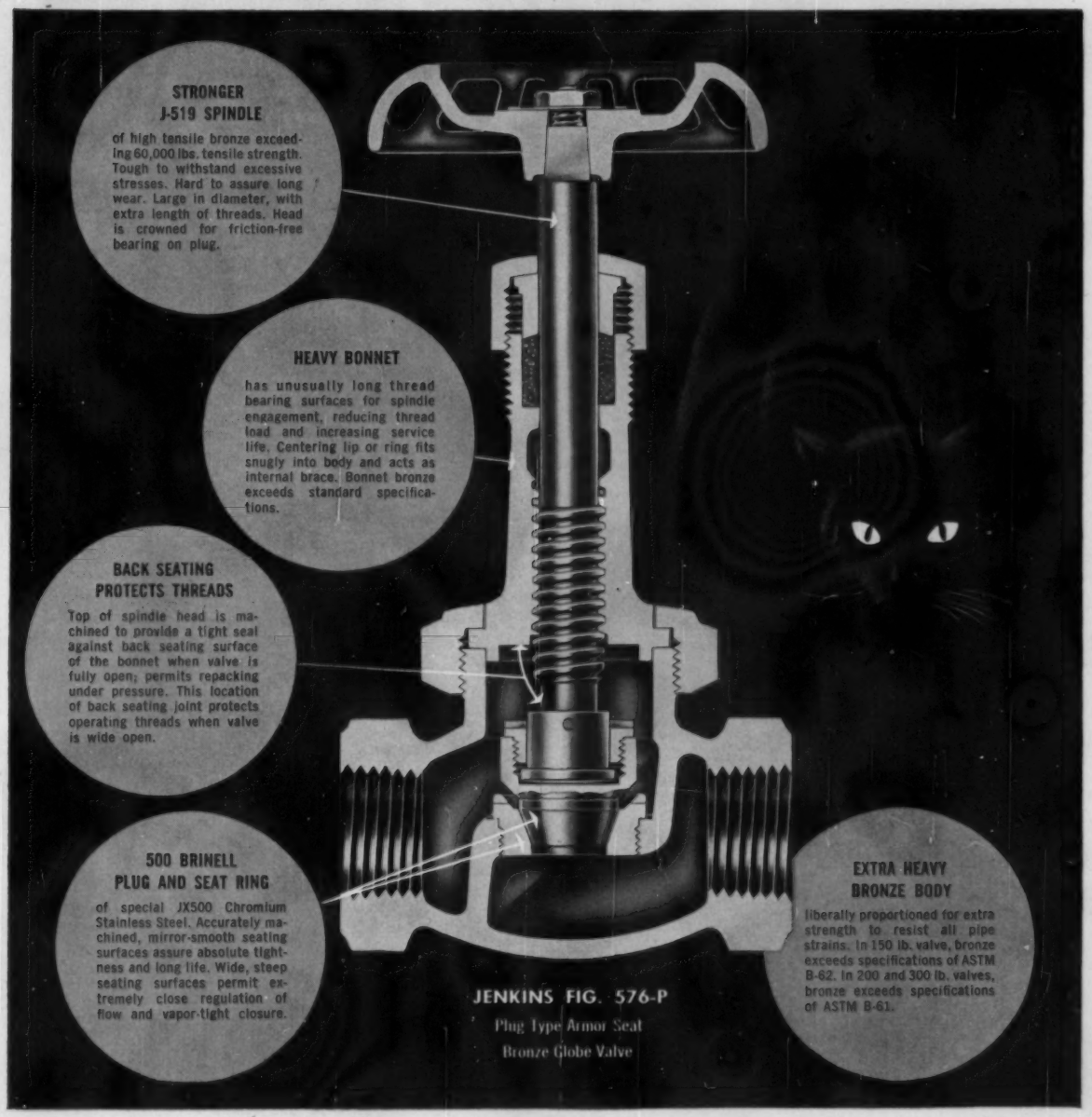
Where valves need 9 lives...


STRONGER J-519 SPINDLE
of high tensile bronze exceeding 60,000 lbs. tensile strength. Tough to withstand excessive stresses. Hard to assure long wear. Large in diameter, with extra length of threads. Head is crowned for friction-free bearing on plug.
HEAVY BONNET
has unusually long thread bearing surfaces for spindle engagement, reducing thread load and increasing service life. Centering lip or ring fits snugly into body and acts as internal brace. Bonnet bronze exceeds standard specifications.
BACK SEATING PROTECTS THREADS
Top of spindle head is machined to provide a tight seal against back seating surface of the bonnet when valve is fully open; permits repacking under pressure. This location of back seating joint protects operating threads when valve is wide open.
500 BRINELL PLUG AND SEAT RING
of special JX500 Chromium Stainless Steel. Accurately machined, mirror-smooth seating surfaces assure absolute tightness and long life. Wide, steep seating surfaces permit extremely close regulation of flow and vapor-tight closure.
EXTRA HEAVY BRONZE BODY
liberally proportioned for extra strength to resist all pipe strains. In 150 lb. valve, bronze exceeds specifications of ASTM B-62. In 200 and 300 lb. valves, bronze exceeds specifications of ASTM B-61.
JENKINS FIG. 576-P
Plug Type Armor Seat
Bronze Globe Valve

Install this JENKINS...made to defeat valve-killers

HERE are just five of the eighteen ways by which Jenkins Plug Type Valves have been engineered for maximum wear in valve-killing services. For any close-control steam service like drains, bypass lines, drips, blowoff, throttling, bleeders . . .

Or where abrasion, entrapped pipe chips, scale or rust tubercles are a problem . . .

You'll cut maintenance and replacement costs by specifying *"Jenkins Plug Type, with the 500 Brinell Stainless Steel Armor Seat"*. In the Jenkins Catalog are 150 lb., 200 lb. and 300 lb., Globe and Angle, screwed or flanged end valves in a full range of sizes. And, they are available quickly from local distributors' stocks.

WRITE us, or ask your Jenkins distributor for descriptive folder No. 202-A. Jenkins Bros., 100 Park Avenue, New York 17.

JENKINS
LOOK FOR THE JENKINS DIAMOND
VALVES
SINCE 1864 TRADE JENKINS MARK

Sold Through Plumbing-Heating and Industrial Distributors

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WHY ACCOTEX APRONS SPIN CLEAN, UNIFORM YARN

Armstrong Accotex® Aprons consistently deliver clean, uniform yarn no matter what you're spinning — natural fibers, synthetics, or blends.

There are good reasons for this kind of performance. One of the most important is the fact that each Accotex Apron is identical in every respect . . . identical in frictional qualities, flexibility, wear resistance, and size.

Like the modern machinery they run on, Accotex Aprons are precision made. Each is carefully ground on special equipment to the exact thickness you specify. Careful inspection methods help insure this accuracy during production.

The patented three-layer construction of Accotex Aprons maintains their dimensional accuracy while in service. A strong, straight-line cord interliner prevents stretching or curling, yet allows complete flexibility.

Advanced production methods and careful inspection . . . combined with skillful compounding of synthetic rubbers . . . all help produce a top-quality apron, one that runs smooth and clean, delivering strong, uniform yarn for years.

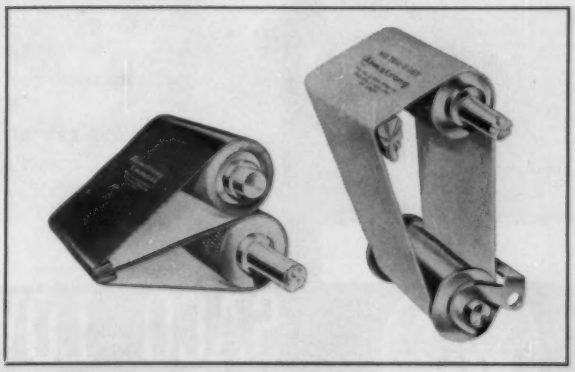
There's an Armstrong Accotex Apron specially engineered to give you this kind of performance on any type of single- or double-apron high-draft frame. If you're not already using Accotex Aprons, ask your Armstrong man to arrange for a test next time he calls. Prove on your own frames what an important difference in yarn quality these aprons can make.

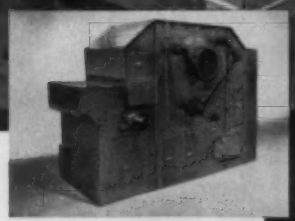
For more information on Accotex Aprons and other Armstrong textile items, write for a copy of the booklet, "Armstrong Textile Products." Address Armstrong Cork Company, Industrial Division, 6404 Dauphin St., Lancaster, Pennsylvania. All Armstrong Textile Products are available for export.

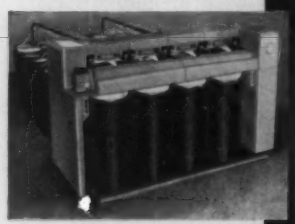
Armstrong ACCOTEX APRONS

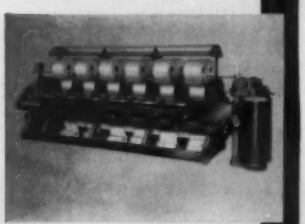
. . . used wherever performance counts

FOR DOUBLE-APRON SPINNING, use Accotex NO-7075 Aprons. Inner surface grips drive roll firmly, yet slips over pins without jamming. For single-apron spinning, the NO-750 Apron gives the smooth drafting action needed for strong, uniform yarn.









PROFITABLE MILL OPERATION STARTS WITH A SACO-LOWELLIZING PROGRAM

"Competitive position" — these are the words being uttered daily in mill management meetings. They have to do with many things — efficiency, production per man hour, quality, operating costs, waste control, and profits.

Mills throughout the country have started their move toward "Better competitive positions" with a SACO-LOWELLIZING PROGRAM. Specifically, the SACO-LOWELLIZING PROGRAM helps you make better use of floor space, thereby improving production flow; it coordinates the successive steps in processing; reduces waste, spoilage and unnecessary handling of stock; and, helps you realize the greatest economies in operating and maintenance costs.

Ask your nearest Saco-Lowell Sales Office for a "Forecast of Savings" based on a Saco-Lowellizing program.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N.C. Sales Offices: CHARLOTTE GREENSBORO GREENVILLE ATLANTA

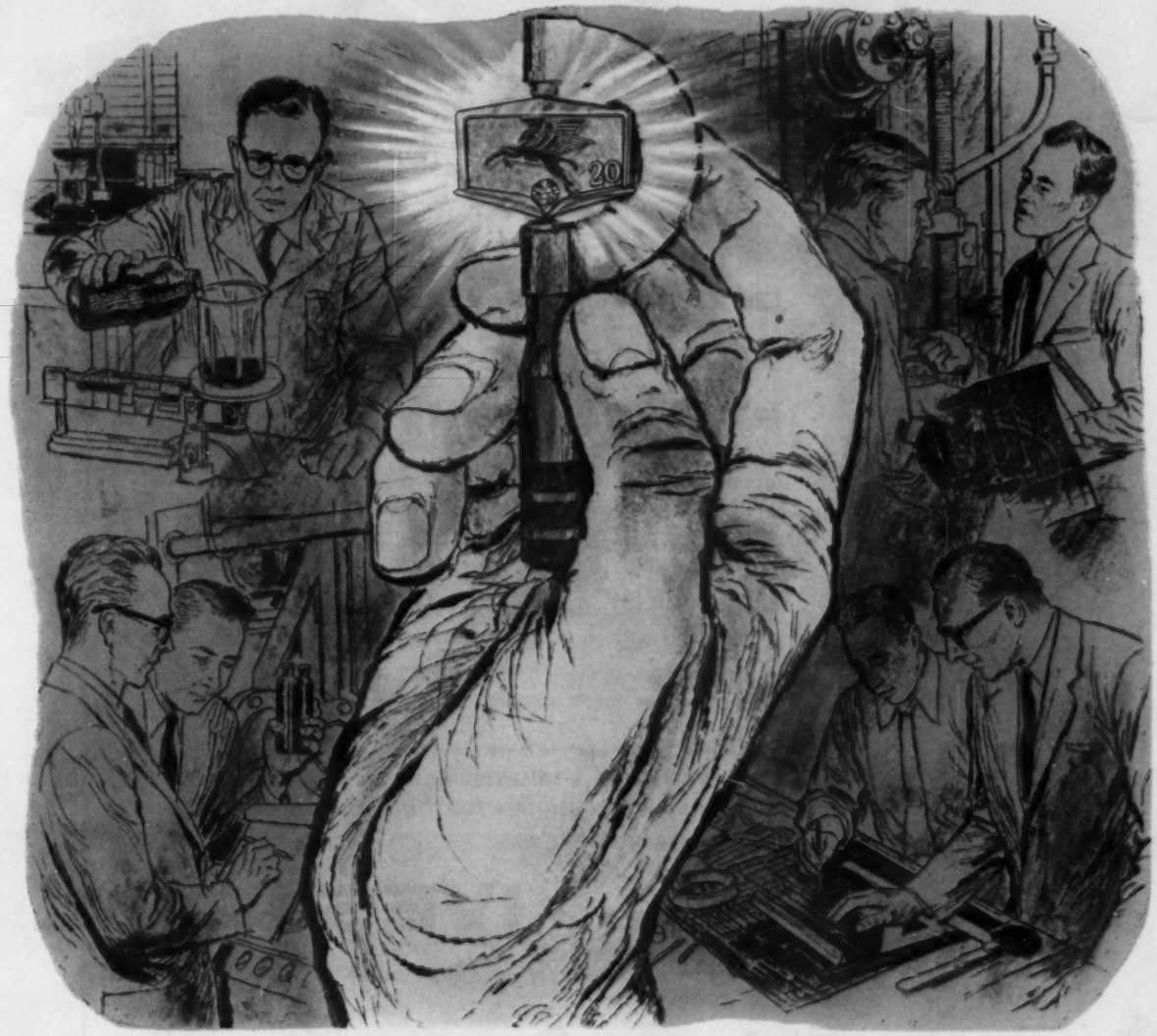
MEASURE OF A MAN

Technically, this jeweled lapel pin measures a mere 0.370 inches. But, in terms of what it represents it is the measure of a man—his depth and breadth of experience, his ability to help you.

The man is your Socony Mobil representative. The pin represents twenty years of service. Almost half of our lubrication engineers and salesmen wear it. In fact, the average length of service of *all* Socony Mobil representatives is over 17 years.

This great background of practical experience, coupled with the most comprehensive lubrication program ever offered by any petroleum company, is yours when you depend on Mobil products.

This combination has resulted in improved production, reduced maintenance costs for thousands of industrial plants. Why not yours?



Leader in lubrication for 91 years

SOCONY MOBIL Mobil *Correct Lubrication*

A proved program to reduce maintenance costs

SOCONY MOBIL OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP., MOBIL OVERSEAS OIL CO., INC.

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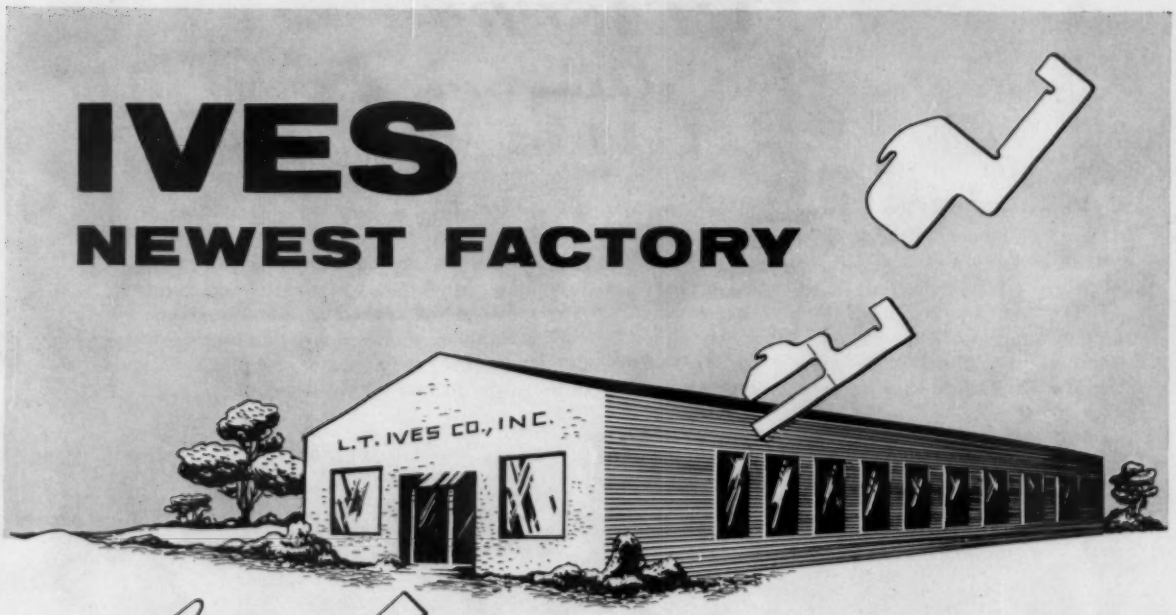
IVES
NEWEST FACTORY



produces precision knitting needles and parts automatically

To better serve the textile industry, we have substantially expanded our manufacturing facilities in a nearby suburb.

The superiority of Ives expertly designed extra durable vanadium steel parts is a result of over 84 years in-the-mill on-the-job performance!

Ives accurately produced parts are logical first-choice equipment when knitting machine settings are checked electronically (TW Oct. 1956).

Let Ives help you produce finer fabric with knitting parts made for today's rigid machine and yarn requirements.

Contact Ives if you operate these machines:
SUPREME • FIDELITY • TOMPKINS • KIDDE • BRINTON • WILDMAN-JACQUARD
CRANE • BANNER • REINER • SCOTT & WILLIAMS • BENTLEY

Prompt deliveries assured. Write, wire or phone CHarter 9-0396-7

THE LOYAL T. IVES COMPANY, INC.
NEW BRUNSWICK, N.J.

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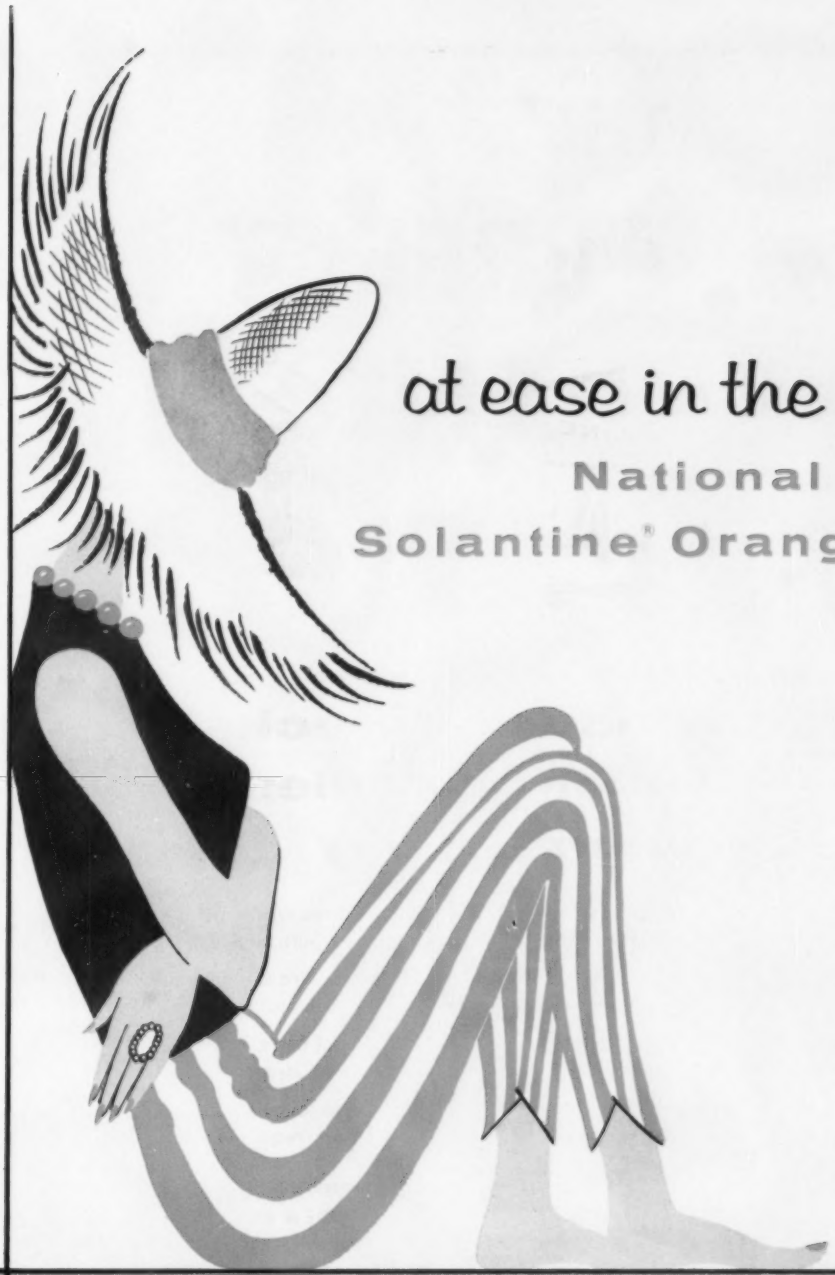


at ease in the sun!

National Solantine® Orange EGL

Here is a direct dye for moderately bright shades of orange as well as warm tones of brown and tan. Used alone or in combination, it produces very good light fastness and good-to-very-good wet fastness.

Non-dusting and extremely soluble . . . it dyes at low temperatures, levels well and is practically unaffected by metals in the dyebath. Nylon and acetate effects remain practically unstained and excellent whites are obtained with a neutral discharge.

Our nearest office will be glad to send you a working sample and a copy of descriptive Bulletin No. 438 detailing complete fastness and working properties.

NATIONAL ANILINE DIVISION ALLIED CHEMICAL & DYE CORPORATION • 40 RECTOR ST. NEW YORK 6, N. Y.

Akron Atlanta Boston Charlotte Chattanooga Chicago Columbus, Ga. Greensboro Los Angeles New Orleans Philadelphia Portland, Ore. Providence Richmond San Francisco Toronto

National Aniline — Allied Chemical

THE *Now* PERFECT BLENDER!

Textile mills have always been plagued by troubles which could be traced directly to imperfect blending. Even though the cause could be determined the CURE was not available—until NOW!!

THE CEN-TENNIAL PERFECT BLENDER

reduces stock to single fiber elements and insures perfect blending—eliminating troubles caused by imperfect blending—such as

DACRON — WOOL
COTTON — DACRON

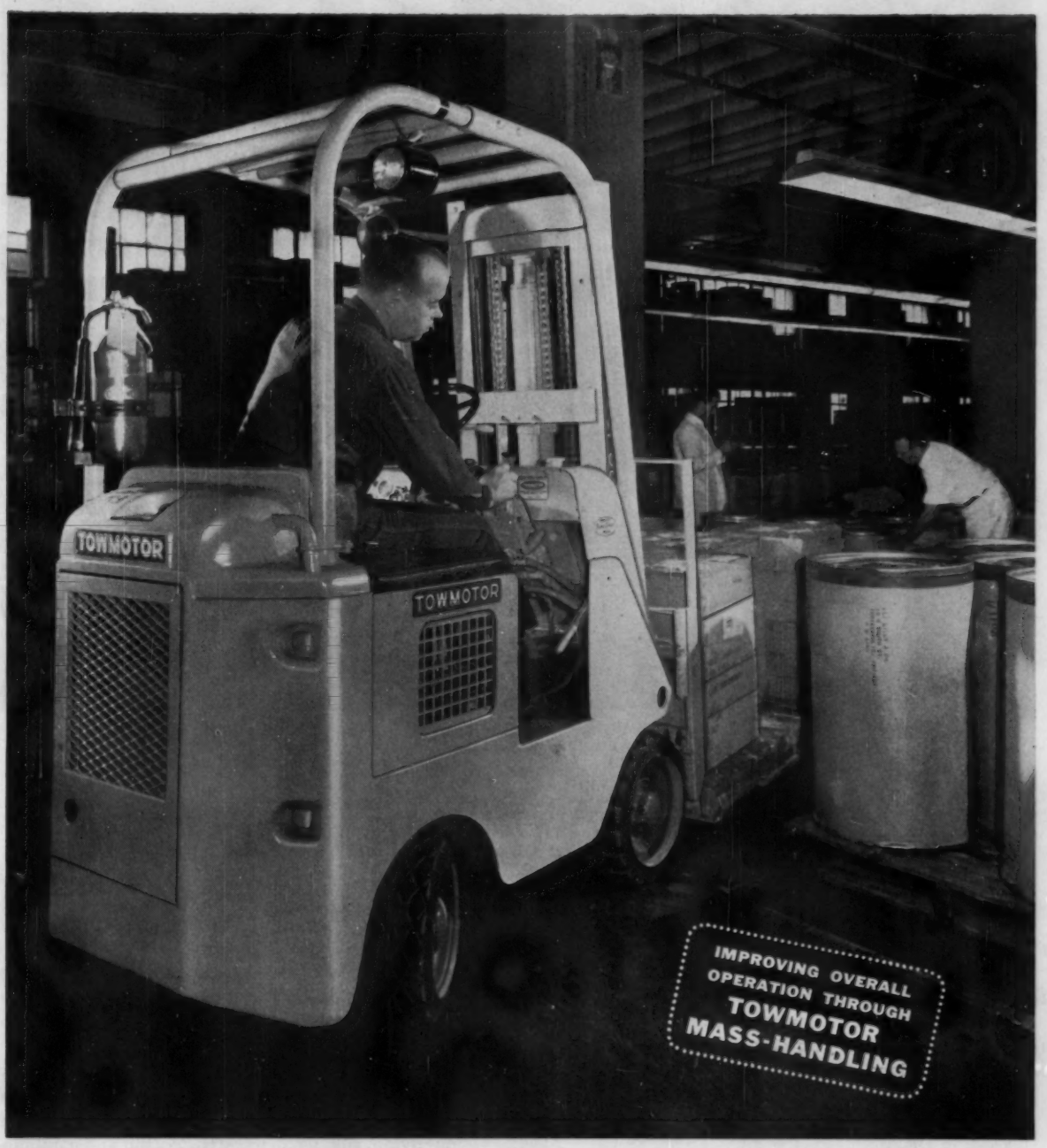
ORLON — WOOL
RAYON — DACRON

NYLON — RAYON
RAYON — ORLON

- **STREAKY EFFECTS**
- **UNEVEN YARNS**
- **FILLING BANDS**
- **UNEVEN DYEING**
- **EXCESSIVE ENDS DOWN**
- **UNNECESSARY WASTE**

CEN-TENNIAL COTTON GIN COMPANY

COLUMBUS, GEORGIA



...increasing productivity without adding personnel!

Management men in every industry are giving productivity and profits—*as well as personnel*—a lift by integrating Towmotor mass-handling in all operations from receiving to delivery.

Every department benefits. More work gets done. And you don't need more men to do it because Towmotor fork lift truck operators are finding it's *fun* to multiply the handling of materials aided by 12 new Towmotor improvements like these:

- New functional body styling
- New pace-setting comfort features
- New "tight-spot" maneuverability
- New centralized easy-reach controls
- New positive-response hydraulic lift
- Towmotor-improved power steering

Some of the industry's most significant advances in fork lift truck design and performance are shown in Towmotor's latest bulletin #SP-23. See how they help supplement your personnel—permit your men to do a bigger day's work easier—give each operator the power to improve your plant's productivity and profits.

Write Towmotor Corporation, Cleveland 10, Ohio. We'll send the illustrated booklet immediately.

Leaders for 38 years in building Fork Lift Trucks and Tractors

TOWMOTOR THE ONE-MAN-GANG ® **-GERLINGER**

Gerlinger Carrier Company, Dallas, Oregon is a subsidiary of Towmotor Corporation, Cleveland, Ohio

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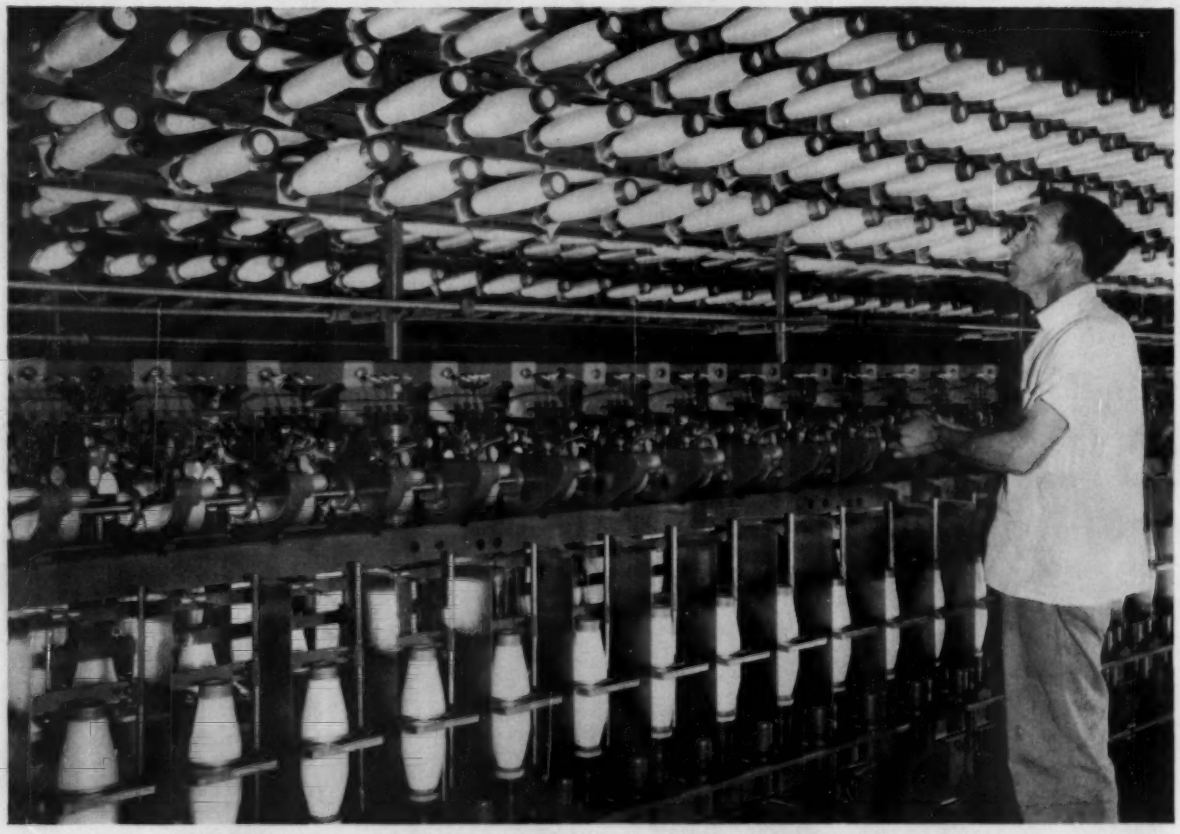

Leesona Model 10 Ring Twisters processing glass yarn at the Seguin, Texas, plant of the Coast Manufacturing and Supply Company. The firm produces Trevarno Glass Fabrics.

Producers of TREVARNO GLASS FABRICS chose Leesona Model 10 Ring Twisters

Years of research and planning went into the decision of Coast Manufacturing and Supply Company to enter the textile industry as processors and weavers of glass cloth. The 85-year-old Livermore, California, firm, with a long history in the manufacturing and distribution of safety fuse for the mining and construction industries, made the carefully-planned move into textiles in 1947.

Ralph E. Merritt, president of the firm, reports:

"After evaluating other types of twisting equipment, Coast Manufacturing and Supply Company decided upon the Leesona Model 10 Ring Twister."

Model 10's are used exclusively in Coast Manufacturing's 800-spindle twister installation in Seguin, Texas, producing a double-tapered package which can be used directly for filling and warping operations without rewinding.

Versatile Leesona Model 10's can also produce a tapered top or straight wind package. They are ideal for processing not only glass yarn, but rayon, spun rayon, nylon, silk, wool, worsted, cotton and combination yarns, and the new bulk and stretch yarns as well.

Make Your Own Evaluation

See how flexible Leesona Model 10 Ring Twisters can improve your own twisting operations. See your Universal representative or write direct.

23.6.11

UNIVERSAL WINDING COMPANY

P. O. BOX 1605, PROVIDENCE 1, R. I.

Sales Offices: Boston • Philadelphia • Utica • Charlotte • Atlanta • Los Angeles
Montreal • Hamilton, Canada

Winding and Twisting Machinery for Natural and Synthetic Yarns

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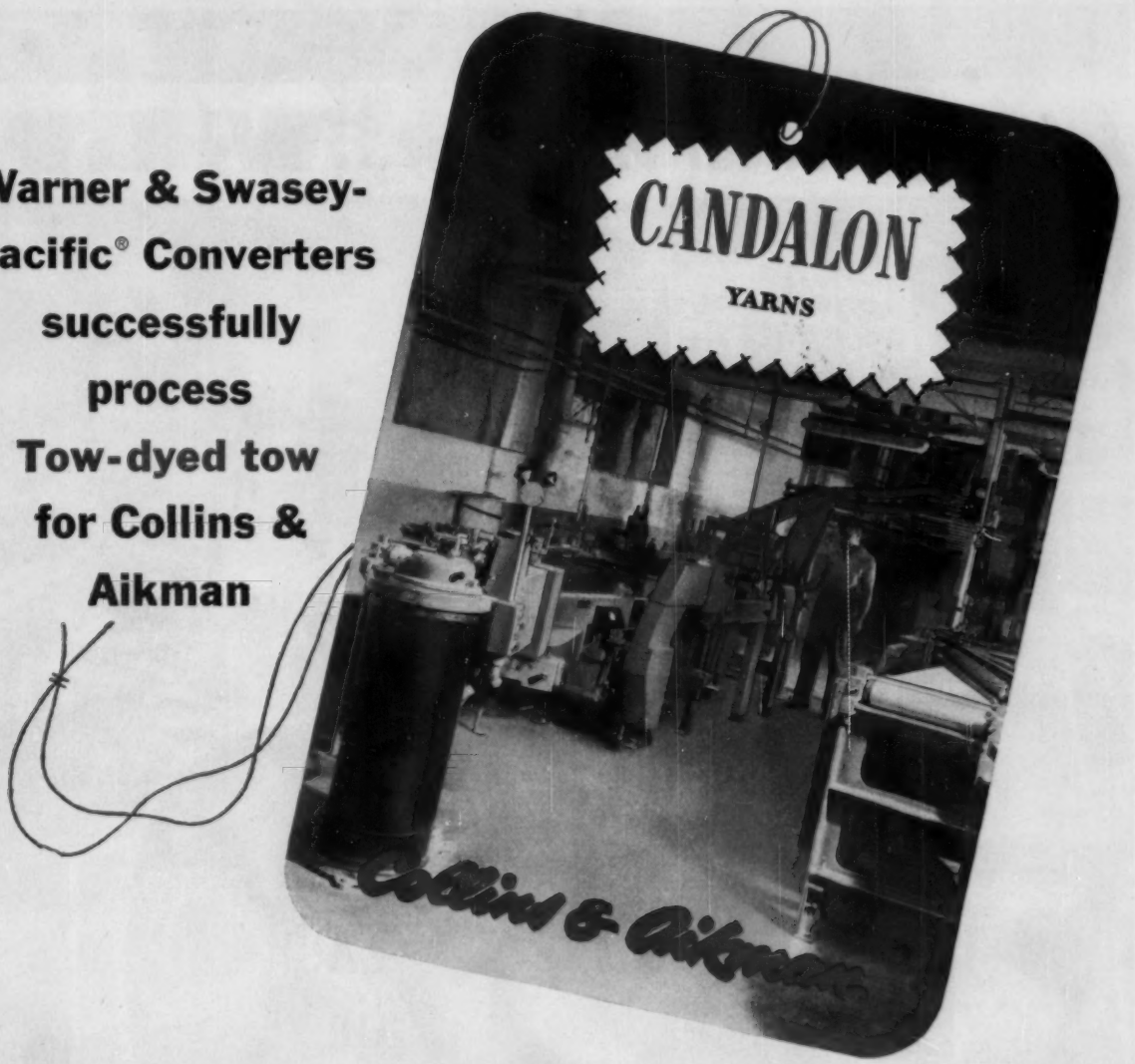
Warner & Swasey-Pacific® Converters successfully process Tow-dyed tow for Collins & Aikman



Collins & Aikman, pioneer producer of the well-known line of durable, quality Candalon Yarns, report they eliminate color variation in synthetics by first having the tow tow-dyed commercially. Then it's processed over their two Warner & Swasey-Pacific Converters which eliminates all stapling, opening, picking, carding and combing.

They tell us, "With the Warner & Swasey-Pacific Converters on the job, we are reaching our ultimate aim of improved quality at a lower price."

At Collins & Aikman's West Barrington, Rhode Island plant, conversion of tow-dyed tow is not limited to any one color. It's currently being processed in the following pastel shades: Sandalwood, beige, church red, linter green, spruce green, turquoise, gray and old gold. Production of hi-bulk tow-dyed tow never drops below 900 pounds per 8-hour shift. On other tows of Nylon, Dacron, Dynel and Viscose, output averages between 1100 and 1200 pounds per shift.

Why not use this new converter application in your own plant to increase both product quality and over-all profit?

WARNER & SWASEY-PACIFIC CONVERTER
With Heat-Stretch Unit

- Converts all types of synthetic tow to crimped sliver
- Cuts and accurately blends synthetics or natural fibers
- Eliminates blending, carding and gilling operations
- Heat-stretch unit gives *controlled shrinkage* of hi-bulk fibers—unit can be added to all existing converters
- High production—100 to 130 pounds per hour

SALES OFFICES

Main Office and Factory, 5701 Carnegie Avenue, Cleveland 3, Ohio
61 Rivulet St., North Uxbridge, Mass.
121 11th Street, N. E., Atlanta 3, Ga.
Suburban Square Bldg., Ardmore (Philadelphia), Pa.
624 Pecan Avenue, Charlotte 1, N. C.

WARNER SWASEY
TEXTILE MACHINERY DIVISION

® Reg. U. S. Pat. Off.

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS ... WITH A WARNER & SWASEY

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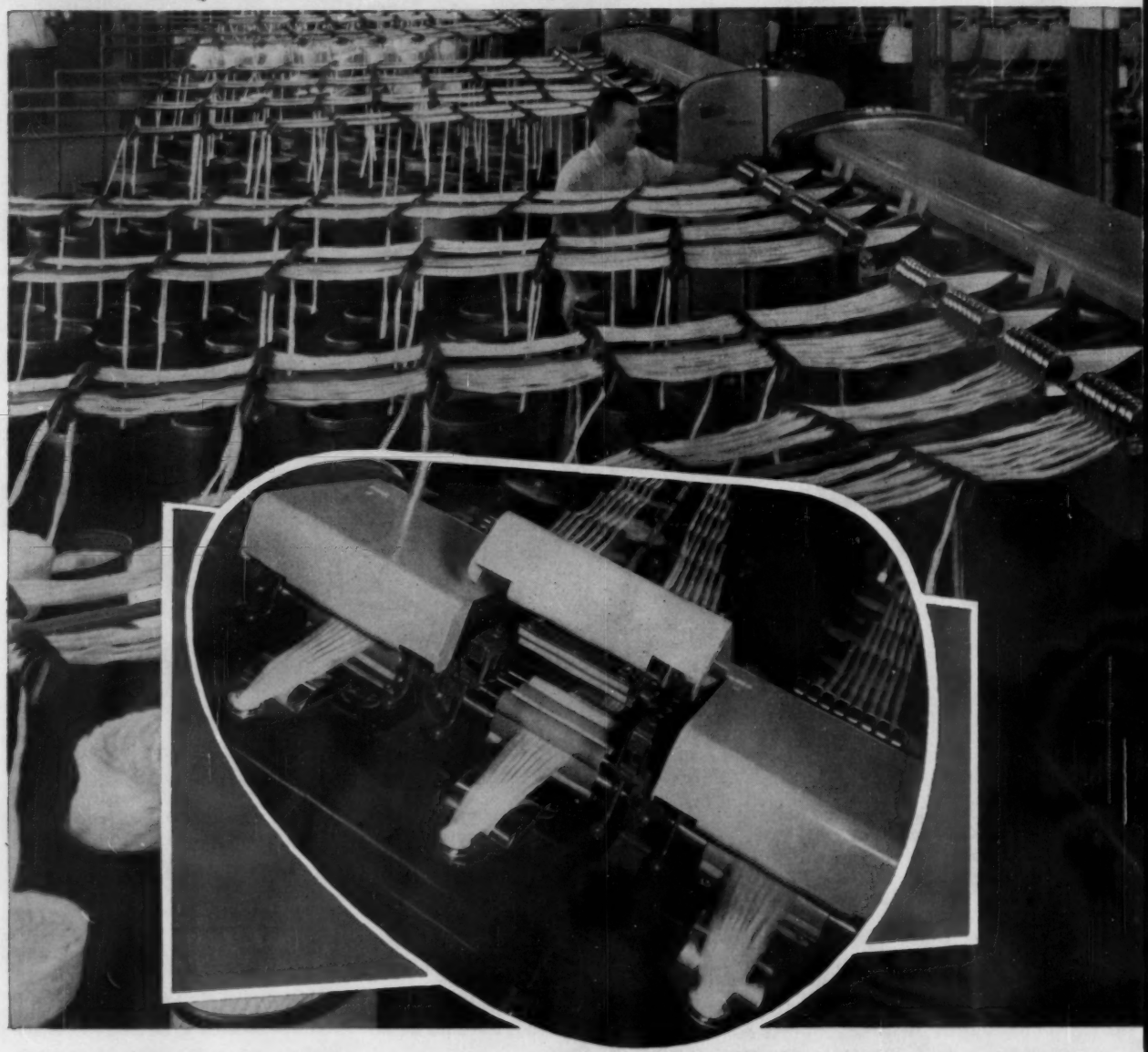
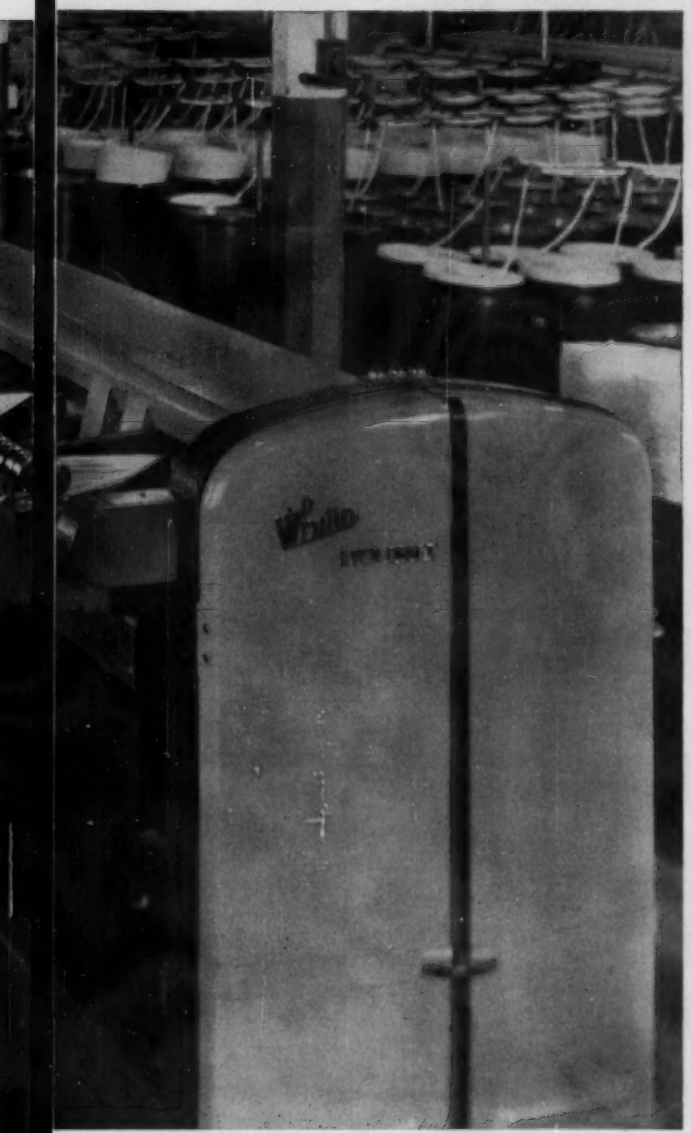
From a practical viewpoint... WHITIN



The Whitin EVEN-DRAFT* drawing frame with its unique Pneuma-Clear waste removal unit has been installed and sucessfully operating in scores of mills. It has now been proven the first practical high speed drawing frame, outperforming all others. Users report up to triple production, sliver more even than ever produced before, costs reduced up to 50%, plus many other advantages in subsequent processing, in yarn and fabric quality.

EVEN-DRAFT* DRAWING

is your best buy . . .



Unretouched photo of 80 delivery installation of Whitin EVEN-DRAFT drawing frames. Note extreme cleanliness of machines and area.

Because **It is unequalled for production, evenness of sliver, running cleanliness, efficiency and lowest operating cost.**

You get **ALL** these advantages with Whitin **EVEN-DRAFT DRAWING**

- **Runs up to 300 feet per minute — On all fibers up to 3" — depending upon mill conditions and production needs**
- **Cleanliness — Clearer waste and fly efficiently removed by Pneuma-Clear units on each delivery — an indispensable essential to satisfactory operation — available only on WHITIN EVEN-DRAFT.**
- **Four over Five drafting units — no rolls to remove or replace, simple to set**
- **Superb sliver quality — Variations: carded 12-16%; combed, 10-14%; synthetics, 10-14%**
- **Advanced design — Two independent four-delivery heads, heavy vibration proof precision construction, overarm weighting, electronic stop motions and signal lights; 14" - 15" - 16" cans, 36" or 42" high.**

A specific example, based on actual operating conditions in the production of high quality print cloth 80 x 80, 39", 4.00 yds./lb., 31's warp, 41's filling, 162,190 lbs. per 144 hrs.

	Breaker	Finisher
No. deliveries	32	32
Sliver fed., grs.	55	55
No. slivers	6	6
Sliver del., grs.	55	60
F.P.M.	300	300
Efficiency	80%	80%
Prod./lbs./hr.	302	329
Prod./144/hrs.	43488	47376
Operators	1	1
Direct labor cost per lb. for drawing (based on cloth prod.)		**$.00234**

TRADE MARK*

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

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Modernize your v-belt drives with

TAPER-LOCK SHEAVES

–proved in over a million installations!

- No flange. No collar. *It's different.*
- Easy on — easy off.
- Just tighten the screws that wedge the bushing. Simple, isn't it?
- Always a perfect fit on shaft — tight as "shrunk-on."
- Complete range of sizes. A, B, C and D grooves, in *stock.*
- Try it—and you'll standardize on it!

Taper-Lock Sheaves, with their precision machining, team up with matched Sealed-Life V-Belts to insure steady performance and unusually long belt life.

DODGE MANUFACTURING CORPORATION, 1400 Union St., Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new methods. Look for his name under "Power Transmission Machinery" in your classified phone book, or write us.

DODGE
of Mishawaka, Ind.

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Scott and Williams Inc.
Invites you to see the
Newest Circular Knitting
Machines in operation.

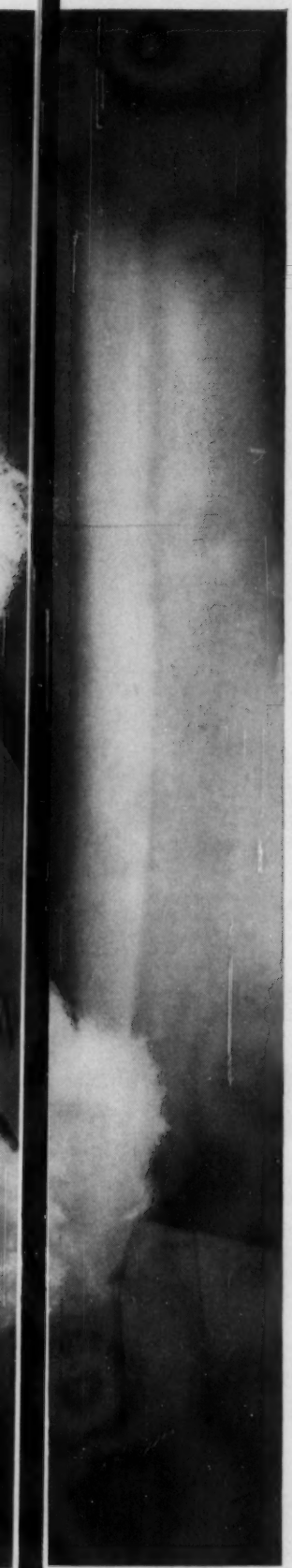
All the machines shown, will be available for your inspection, at the

KNITTING ARTS EXHIBITION

ATLANTIC CITY

April 29 through May 3

BOOTHS 231 to 242



LOOK WHO'S IN THE QUALITY CONTROL ACT NOW

Acrilan has now moved into the spotlight enjoyed by Chemstrand nylon for unexcelled fiber quality and uniformity.

For nearly two years, the record of Acrilan acrylic fiber in mill after mill has earned it the top spot in smooth-running, efficient performance.

To achieve this record, Acrilan took an important leaf out of Chemstrand nylon's book on quality control. And in many ways, at Pensacola, Chemstrand nylon *did* write the book on new standards for man-made fibers.

Now, at Decatur, Alabama — where Acrilan is manufactured — this same concept is being applied. It embraces the most comprehensive specifications, the closest tolerances, the most exacting standards ever set up for producing a man-made fiber. This we call *Acrilan* quality control.

This control is in continuous operation at every single step of the entire manufacturing operation . . . *and beyond it* . . . to a complete pilot mill where Acrilan is test-processed 24 hours a day, 7 days a week, on machinery that duplicates the normal conditions of mill operation.

How does this answer your problems? By providing four important advantages, among others, in the processing qualities of today's Acrilan:

- *A staple-length uniformity superior to most critical needs in the textile field.*
- *A reduction in fly so significant it is raising yarn quality, reducing mill cleaning costs and waste.*
- *An improvement in high bulk processing that gives far greater assurance of fabric-shrinkage control.*
- *A dye merge uniformity now unchanged in over two years.*

Because of these advances (and they are by no means all), current production of Acrilan has reached and is maintaining a level of *uniform* quality hitherto considered impossible in the newer, man-made fibers.

Equally pertinent . . . under our concept of control, *each* new gain in Acrilan quality tightens the specifications that much more . . . promising further increases in your mill efficiency and production quality.

Yes, Chemstrand nylon is now sharing the spotlight for fiber performance with Acrilan. And the act is a smash-hit in every mill this fiber plays in!

ACRILAN

ACRILAN

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES: 3½ Overwood Road, Akron, Ohio; 4 Pearl Street, Dedham, Mass.; 222 South Church Street, Charlotte, N. C. • PLANTS: ACRILAN® ACRYLIC FIBER—Decatur, Ala.; CHEMSTRAND® NYLON—Pensacola, Fla.

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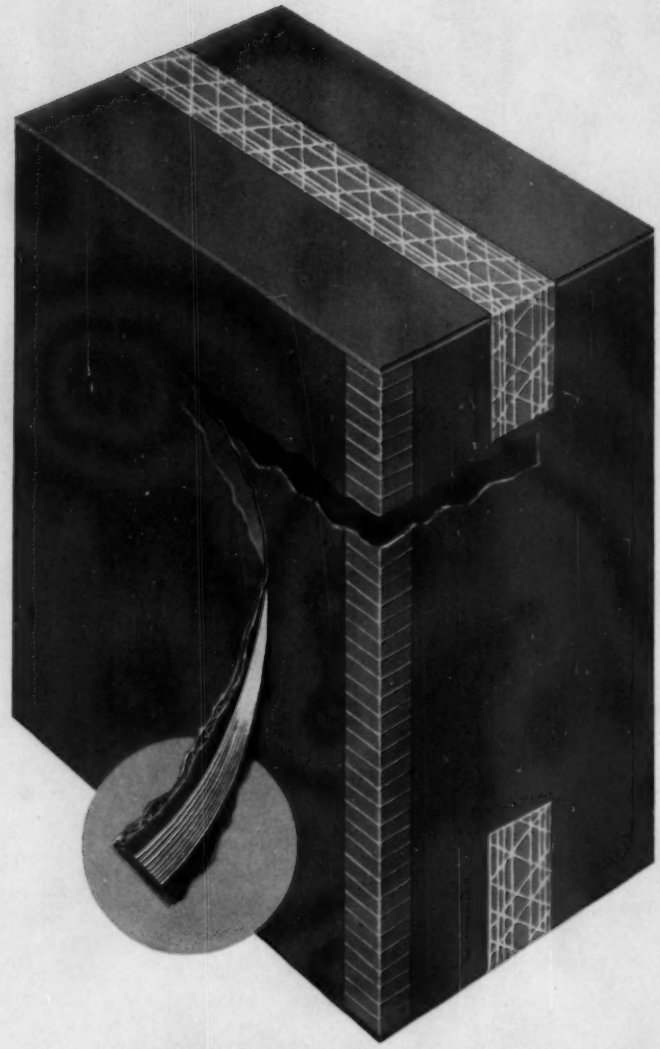
RIP CARTONS OPEN FAST



AVISCO rayon high-strength yarns put cords of extra toughness in all kinds of tapes for quick protective sealing, slash-free opening.

Here's one way high-strength Avisco rayon helps save money and man-hours. Carton opening time is reduced to seconds, and damage to merchandise due to using sharp carton-opening tools is completely eliminated.

Tear tapes, corner stay tapes, and reinforced sealing tapes are just a few of thousands of ways Avisco rayon is used to add strength and tear resistance to packaging materials.

Here are several other examples of how the flexibility, shock resistance and utility of Avisco rayon reinforcements add strength and quality to products at an economical price:

Multi-wall bags for agricultural and chemical products
Case covers and liners • Wrappings for shipping and storing
Wrappings for sheet metals to protect highly finished surfaces
Backing for stucco • Temporary tarpaulins

Whatever your reinforcement requirements, American Viscose can supply fibers and yarns for every application. Our extensive technical facilities and experience are geared to help solve every conceivable design and production problem. Just tell us about your needs on the coupon, and send it in. You'll hear from us immediately.

AVISCO® RAYON

American Viscose Corporation, 350 Fifth Avenue, New York 1, New York

Name _____

Name of company _____

Address _____

Reinforcement requirements _____

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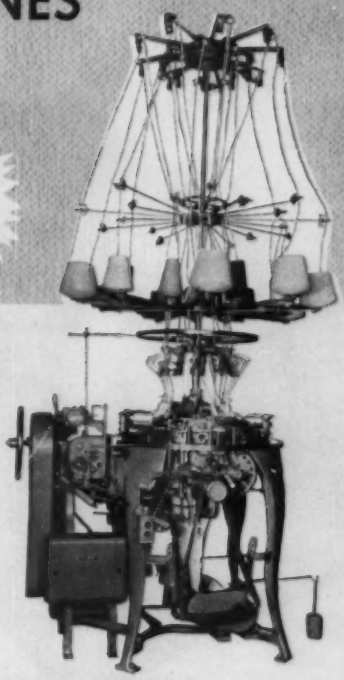
LEIGHTON TRANSFER MACHINES

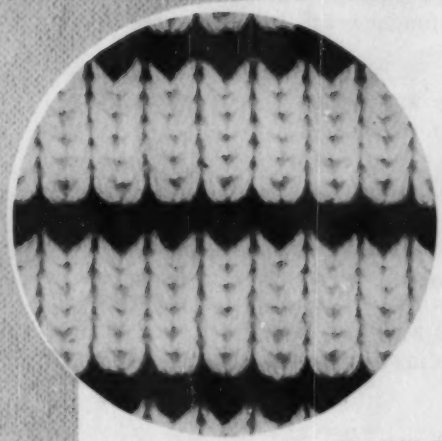
give you High Production . . .

Even on Ban-lon!



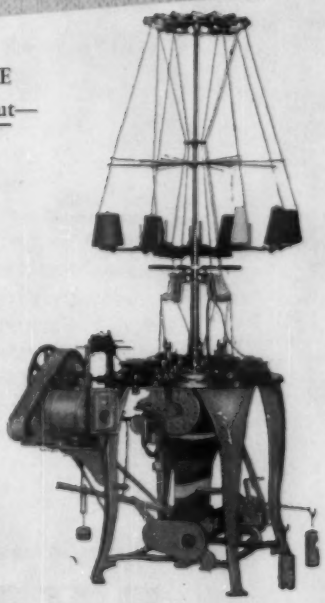
LEIGHTON TRANSFER MACHINES ARE ESPECIALLY ENGINEERED TO HANDLE NEW SYNTHETIC YARNS AS BAN-LON AND ORLON. FIELD TESTS IN MILLS HAVE PROVEN LEIGHTON MACHINES TO HANDLE THESE NEW MATERIALS ON A SATISFACTORY PRODUCTION BASIS USING 14 CUT TRANSFER MACHINES.

. . . OR LEIGHTON'S BULKY KNITTER

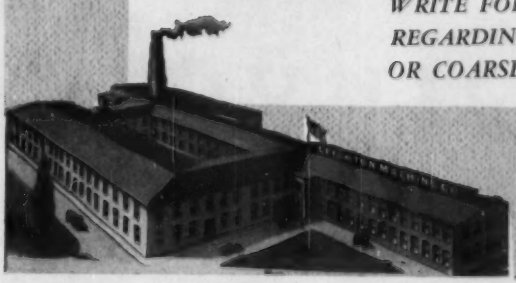


LEIGHTON'S COARSE GAGE RACKING MACHINES 2½ Cut—GIVE YOU TRUE BULKY STITCH SWEATERS WITH FULL STITCHES.

THESE MACHINES ARE AVAILABLE IN 2½—3—4—5 CUT UP TO 3 COLOR STRIPES.



WRITE FOR FURTHER INFORMATION REGARDING LEIGHTON'S TRANSFER OR COARSE GAGE MACHINES.



LEIGHTON MACHINE COMPANY

··· MANCHESTER, NEW HAMPSHIRE ···

MFGRS. OF CIRCULAR LATCH NEEDLE KNITTING MACHINES

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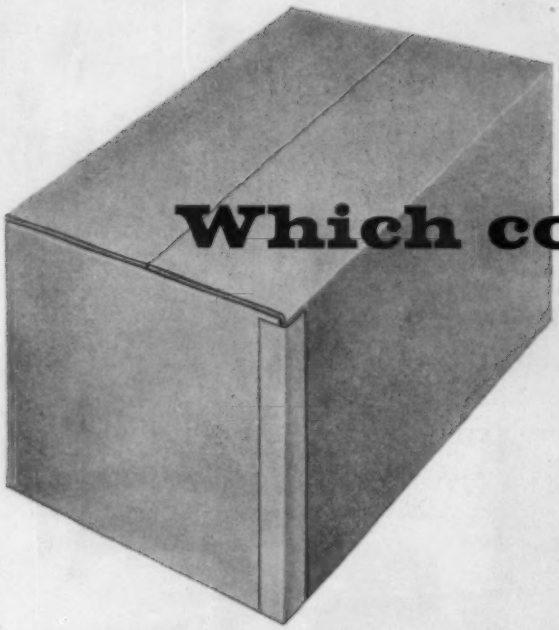
What you should know about "manufacturer's joints" in Union Boxes.



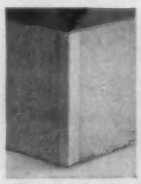
Which corner of a box

One corner is more important than the rest: where your corrugated shipping container is held together. This "hinge", or manufacturer's joint, often holds the key to your box's performance.

As the illustrations show, manufacturer's joints comprise three basic types: taped, stitched, and glued-lap. Each does a special job. Knowing which to use, and when, calls for a detailed analysis of your product and how it will be shipped.

Union Box engineers will be glad to make such a study for you. This is part of Union's complete structural design service. These fundamentals, however, are excellent guides:

Many shippers prefer tape



Taped Joint (outside)

Tape is generally gum-backed, reinforced kraft paper or cloth, having high tear strength, especially in the lengthwise direction. Tapes are 2, 2½ and 3 inches wide and come in varying grades depending on degree of strength required.

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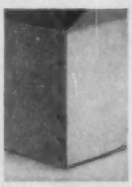
should you examine first?

Advantages: no projections. In stacking, boxes lie flat, rock less. Also, entire interior area of box can be used. The taped joint is continuous, too . . . seals out dust and dirt. And it folds to make a true box corner.

On the other hand, tape is frequently more expensive than other manufacturer's joints. It can be adversely affected by moisture also. In some cases, tape may interfere with printing.

The sturdy stitch

Frequently used for heavy items like canned goods, this joint uses steel staples driven from the outside of the box panel. It is probably the strongest "hinge", gives the most positive closure, and is not affected by moisture or cold. It is usually the least expensive.



Stitched Joint (outside)

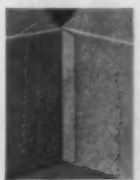
The closure, however, is not continuous. And, since the metal stitches may protrude inside the box, this joint is normally not recommended for fragile and prone-to-scratch articles.

The diagonal stitched joint shown is a typical arrangement. Others include vertical, horizontal, and double stitching.

Glued lap . . . the versatile joint

Flap may be adhered either to the inside or outside of the box, and to the end or side panel. Inside-flap gluing is the most popular. It is the only joint which leaves a completely uninterrupted exterior printing surface.

Like the taped joint, the glued lap joint is continuous . . . forms a true fold. Performance under adverse moisture conditions is questionable. Also, inside-lap does not give 100% clear inside-packing area.



Glued Lap Joint (inside)

Take full advantage of Union's accumulated knowledge in constructing and recommending manufacturer's joints for shippers in every industry. Consistently well-engineered features such as these offer the surest protection for your product and your shipping investment.

union camp

Write for Union's free, informative booklet "Manufacturing Corrugated Boxes."

UNION BOXES

UNION BAG-CAMP PAPER Corporation
233 BROADWAY, NEW YORK 7, N. Y.

Factories: *Savannah, Ga.; Trenton, N.J.; Chicago, Ill.; Lakeland, Fla.*

Sales Offices: *Eastern Division—1400 E. State Street, Trenton, N.J.*
Southern Division—P.O. Box 570, Savannah, Ga.; P.O. Box 454, Lakeland, Fla.
Western Division—4545 W. Palmer, Chicago, Ill.

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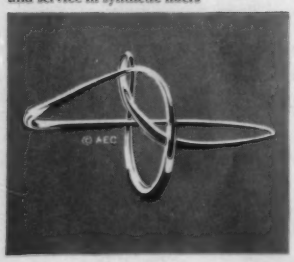
AMERICAN ENKA'S

Enka...symbol of quality
and service in synthetic fibers



AMERICAN ENKA CORPORATION

producers of Jetspun® • filament and staple rayon • filament and staple nylon

530 Fifth Avenue, New York 36, N. Y. • 871 McCallie Avenue, Chattanooga, Tenn.
428 Jefferson Standard Bldg., Greensboro, N. C. • 2001 Industrial Bank Bldg., Providence, R. I.

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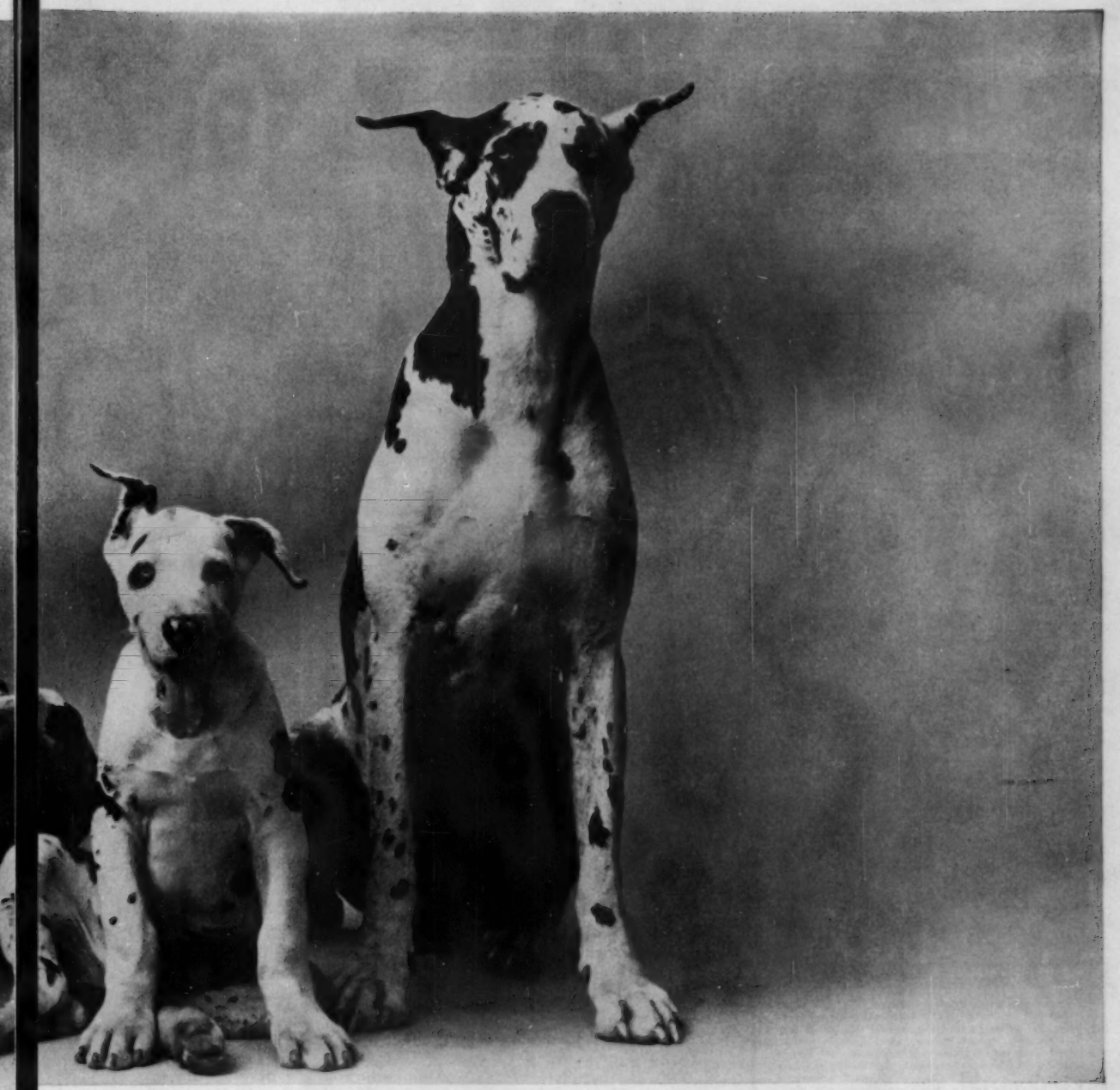

NEW RAYON STAPLE

As tangible evidence of its faith in the future of rayon staple, American Enka proudly announces the completion of the most modern rayon staple plant in the world.

- **an important new domestic source of supply for users of spun rayon**
- **staffed by experienced technicians** • **most advanced production facilities**
- **continuing research and development program** • **prompt and efficient service**

With this new plant, Enka looks forward with confidence to further servicing the textile industry.

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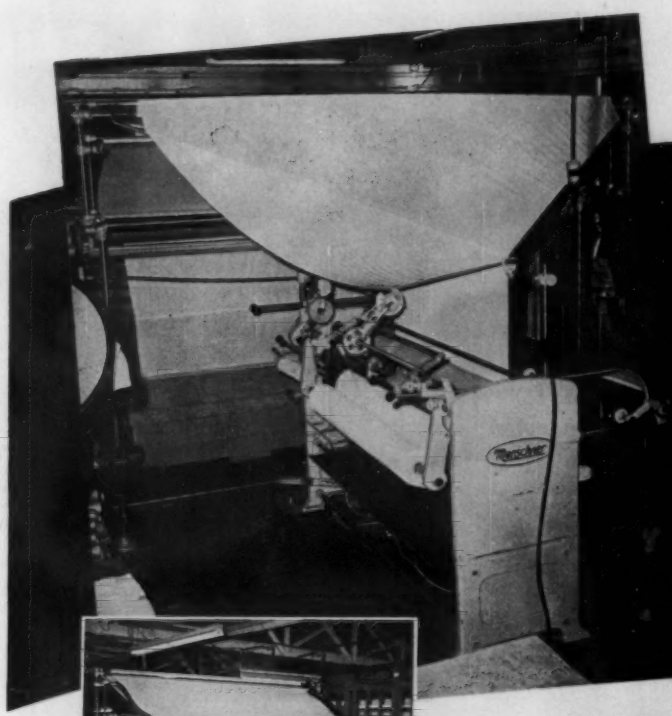
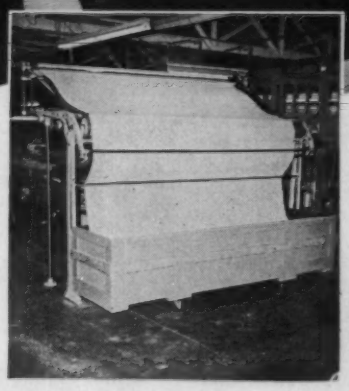


New

HIGH-SPEED,

Doubling, Measuring and Rolling Machine



ALSO AVAILABLE is an attachment (Automatic Guider for Self Doubling, Model S.D. IV) which aligns selvages automatically.

added to REINER'S EXPANDING LINE

It is with pride that Reiner offers this efficient, economical producer—ideally suited for both woven or knitted cloth. Available in various widths up to 120" for open goods (finished goods are doubled and rolled to 60" width). Larger widths can be furnished upon request.

SPECIAL FEATURES:

- 3-Speed drive permits large range of speeds for adaptability to various fabrics.
- Goods can be handled from either folded condition, loose scray or from rolls.
- Machine gives unmatched performance and accuracy even at high speeds.
- No experienced help required for operation of unit.
- Machine prints yardage after each run—insuring accuracy, and eliminating chance for error.

Write for complete details and interesting case history regarding actual mill use of this machine.

THE REINER LINE:

Tricot Machines—Simplex (Double Knit) Machines—Raschel Machines—Tulle Machines—All types of Warpers, Beamers and Creels—75 Gauge (4 section) Full-Fashioned Hosiery Machines—Full-Fashioned Sweater Machines—Schaffhouse Flat Power Knitting Machines—Automatic Schiffli Embroidery Machines (10 and 15 yds.)—Multihead Automatic Jacquard Embroidery Machines—Automatic Bobbin Winding Machines (for stitching and quilting)—Jacquard Pattern Repeating Machines—Reiner-Famatex Tenters—Rabo Permanent Pleating Machines—Menschner Gauged, Doubling, Measuring and Rolling Machines—Menschner Cloth Control and Marking Device—Ready Spare Parts Service for all Reiner Machines.

Visit Us at Booth Nos. 69 to 73 inclusive at the KNITTING ARTS EXHIBITION—Atlantic City, N. J.—April 29 to May 3

ROBERT REINER INCORPORATED

10 MINUTES FROM TIMES SQUARE

Take Bus Nos. 61 or 67, from Platform No. 60, Port Authority Bus Terminal, 41st Street and 8th Avenue, New York City. Get off at Pleasant Avenue, Weehawken, New Jersey. From there turn left and walk through the underpass up to Gregory Avenue . . . TELEPHONE: UNION 7-0502, 0503, 0504, and 0505. From New York City call LONGACRE 4-6882.

FOUNDED IN 1903

550-564 GREGORY AVENUE, WEEHAWKEN, NEW JERSEY

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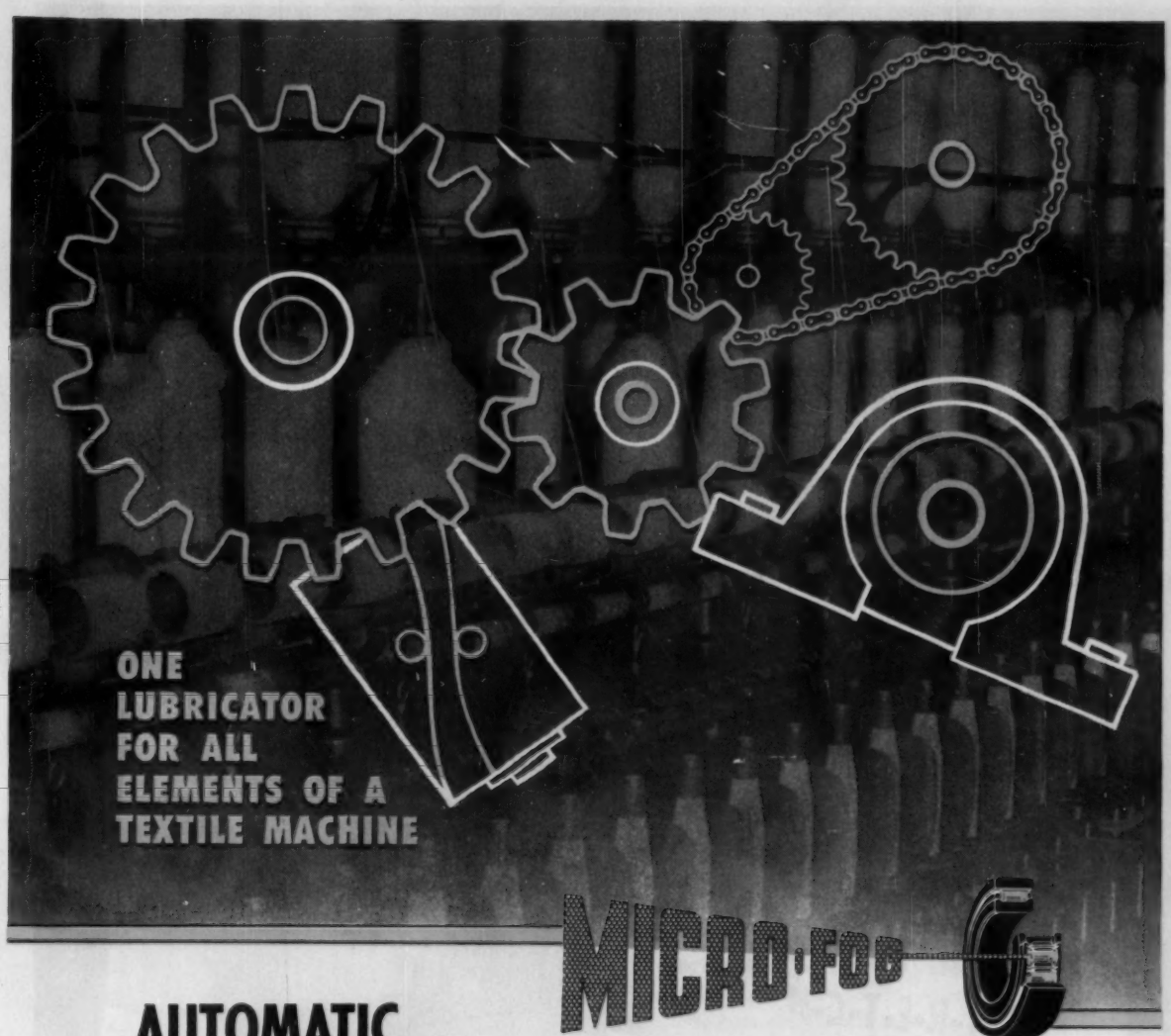

AUTOMATIC *Air-Borne* LUBRICATION

ONLY ONE Norgren MICRO-FOG Lubricator is required to completely lubricate a complex machine. It automatically and continuously applies a protective film of fresh oil to each bearing, gear, chain or cam. Just the right amount of oil, no more, no less, provides the most efficient lubrication, holding machine wear to a minimum.

To learn how MICRO-FOG Lubrication can cut costs in your plant, call your nearby Norgren Representative listed in telephone directory, or *Write Factory for New Catalog.*

C. A. NORGREN CO.

3404 SO. ELATI STREET ENGLEWOOD, COLORADO

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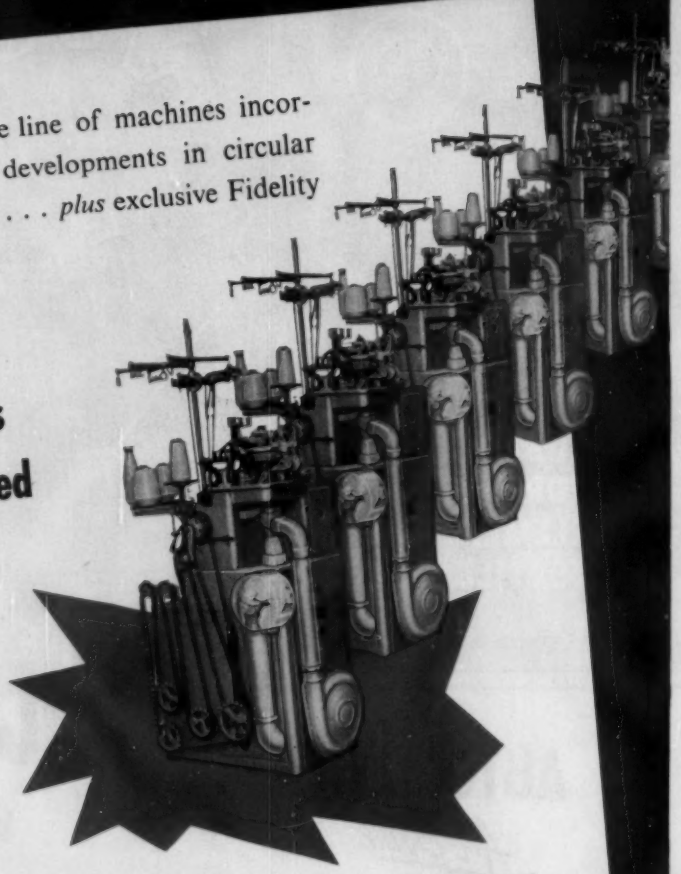
FIDELITY for SEAMLESS

Only Fidelity offers a complete line of machines incorporating *all* the outstanding developments in circular knit hosiery equipment design . . . *plus* exclusive Fidelity electronic control!



- 400 or 474 Needles
- Single or Double Feed
- Automatic Tension Device
- Plain, Mesh or S-T-R-E-T-C-H
- Individual Motor Drive with . . .
- Electronic Push Button Control

You select the performance features *you* want . . . when you select a Fidelity. See the *complete* Fidelity line in operation at our showrooms . . . or write for stocking samples today.

Visit Booth 243-248 at the Knitting Arts Exhibition—See all the "Profit Making" Fidelity lines in operation

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

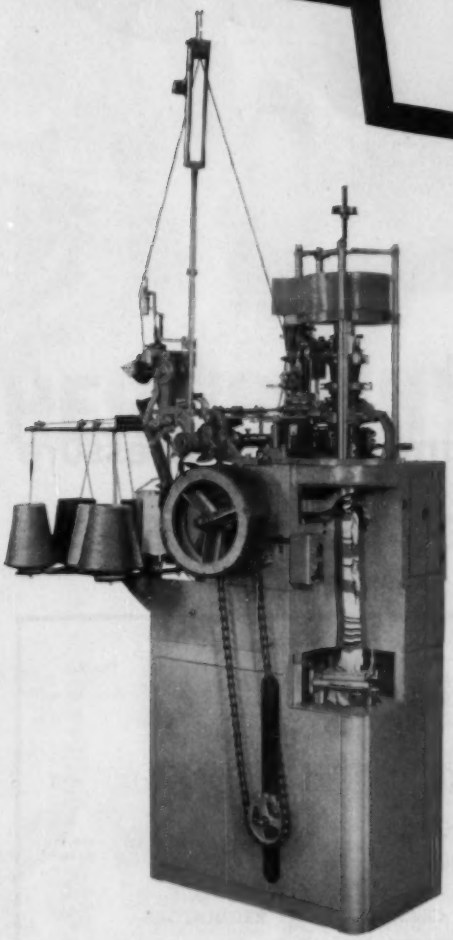
FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N.Y. SOUTHERN REPRESENTATIVE: C. S. BRANNOCK, P.O. BOX 763, MT. AIRY, NORTH CAROLINA

HAND WORK

HOLDS DOWN YOUR PROFITS



ELIMINATE HAND TRANSFER

WITH THE NEW FIDELITY

Automatic True Rib

*Check these outstanding "Profit Features" of the A.T.R.**

- **A** utomatic clipping for selvage
- **U** ndersole Looping for Added Comfort—Added Sales Appeal
- **T** rue rib top made with dial latch needles
- **O** nly 5 Drum Tricks for up to 10 Colors mean faster Pattern Changes
- **M** inimum Floor Space, yet contains rotating take-up
- **A** utomatic Plating and Splicing Attachment Eliminates Trimming
- **T** hy-Mo-Trol Electronic Drive by General Electric
- **I** deally suited for use with Stretch Yarn
- **C** olor possibilities Unlimited with use of New Fidelity 10 Color Yarn Selector and Knot Tyer
- **T** ransfer of Superior Quality, Completely Automatic
- **R** ubber Lay-In and Picot Optional

* all sizes from 2¾" in Plain and 2x2 Rib

No Automatic Transfer Knitter available today offers the same degree of design and construction simplicity PLUS production versatility and efficiency! You can actually produce superior quality ribbed hose for teens and tots . . . at faster production rates . . . at ultimately lower costs.

See the new Fidelity "A-T-R" in operation at our showrooms . . . or write for samples and details today!

FOR GREATER PROFITS . . . GO AUTOMATIC . . . GO FIDELITY A-T-R"

Visit Booths 243-248 at the Knitting Arts Exhibition — See the "Profit Making" Fidelity lines in operation.

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N.Y.

SOUTHERN REPRESENTATIVE: C. S. BRANNOCK, P.O. BOX 763, MT. AIRY, NORTH CAROLINA

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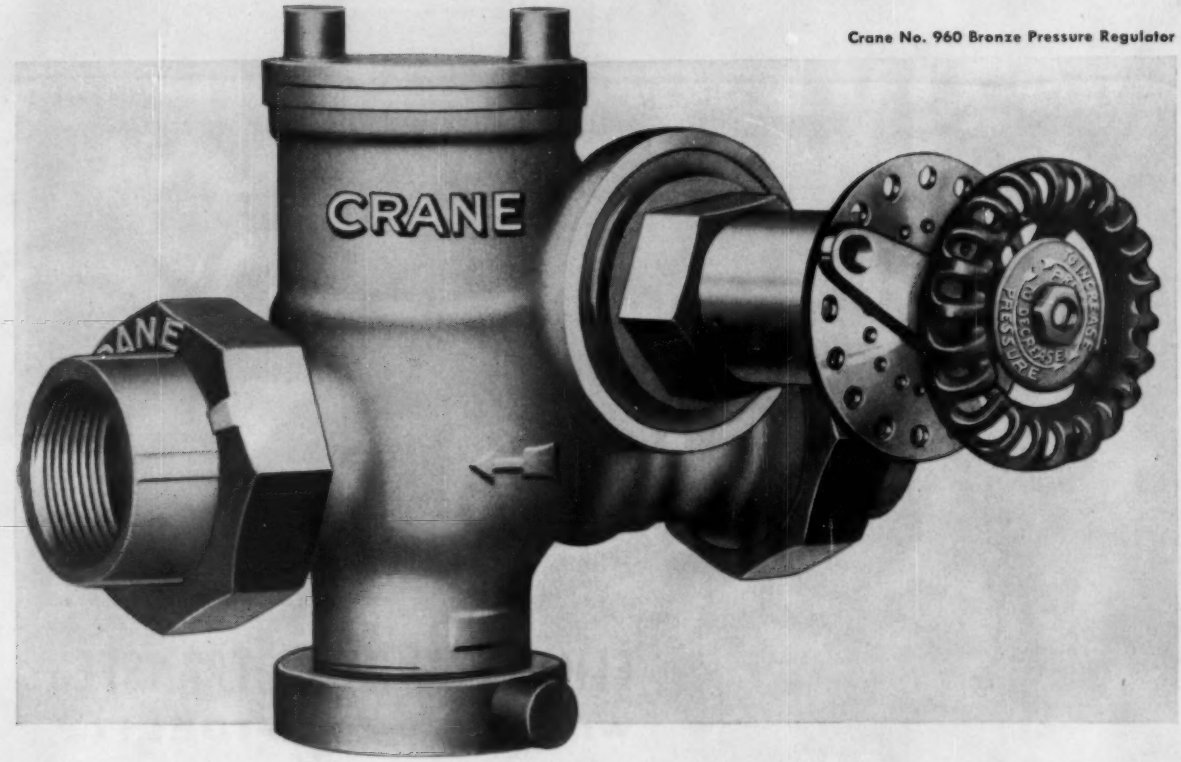
Crane No. 960 Bronze Pressure Regulator



for dependable, *precision* control of steam and air pressure

CRANE PRESSURE REGULATORS

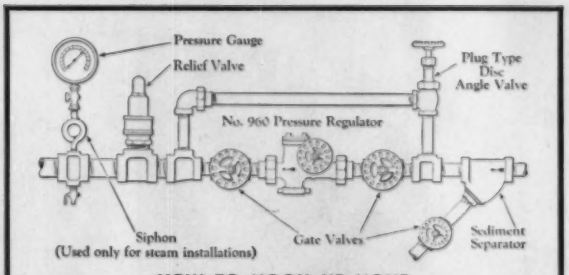
For accurate regulation of steam and air pressure, you're safe and sure when you specify Crane No. 960 Bronze Pressure Regulators.

Because they are Crane-designed and Crane-built for long, trouble-free operating life, these rugged, precision type regulators meet the most exacting requirements of modern heating systems, air blasts, cookers, driers, vulcanizers and other process equipment.

With Crane Bronze Pressure Regulators, outlet pressure cannot build up to inlet pressure when there is no steam or air demand on the outlet side. Equally important, ordinary fluctuations of inlet pressure do not affect the outlet pressure.

NEW LITERATURE ON REQUEST

Available in sizes ½ to 2 inches; maximum inlet pressures 250 pounds air or 250 pounds steam up to 450° F.



HOW TO HOOK UP YOUR CRANE PRESSURE REGULATORS

New circular helps you select proper regulator for your needs. Ask your Crane Representative for a copy, or write to address below.

CRANE VALVES & FITTINGS

PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

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Nylon for Carpeting.....!

WHY?

HERE'S WHY:

1. **Permanent Textures.** More *permanent* than wool, cotton or rayon.
2. **Cleanable.** Nylon is an easy-to-care-for fiber. The round, smooth nylon fibers prevent dirt from clinging. May be spot-cleaned and shampooed. Dries quickly.
3. **Resists Abrasion and Scuffing.** Will outwear comparable carpeting made from *any other* fiber.
4. **Resists Crushing and Matting.** More crush resistance and less matting than comparable wool, rayon or cotton floor coverings in service.
5. **More Resilient.** More resilient than comparable wool, rayon or cotton floor coverings after continued usage.
6. **Economical.** The strongest and toughest of all carpet fibers, nylon will outwear comparable wool and rayon fabrics, thus be actually less expensive in the long run.
7. **Mothproof, Insect-Resistant.** Never a worry about moths! Carpet beetles cannot attack nylon carpeting.
8. **Decorator Colors.** Nylon can be dyed in lasting colors and an attractive range of shades.

Any reliable manufacturer can deliver these benefits in carpeting made from 100% IRC nylon. In addition, manufacturers can, and are delivering nylon blends in superior carpeting which features many of the pluses listed above.

Nylon offers the carpeting industry positive performance characteristics that add up to true value for the consumer.

THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION, Sales Offices: 500 Fifth Avenue, New York 36, N. Y. • 627 Guilford Building, Greensboro, N. C.

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TESTED and PROVED

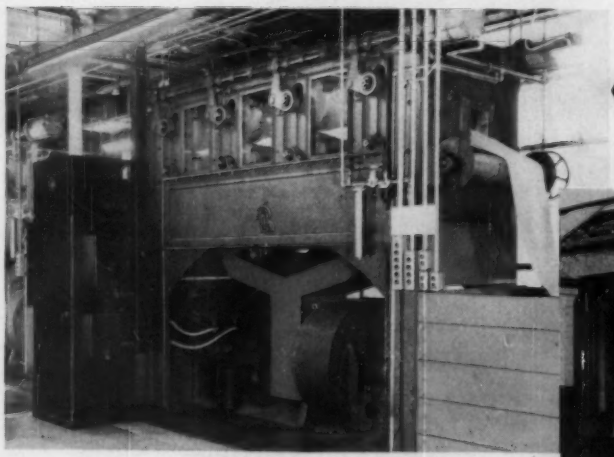
The Fleet Line

CONTINUOUS CRUSHERS

Protect Your Profit Figures

In many plants for many years, R & L Continuous Crushers have set the standard for reliable operation—and *only* R & L engineering has developed the know-how to offer improvements on their superb performance.

While these machines deliver cloth at the production rate of the carbonizing range, the actual crushing speed in the machine is better than 200 yards per minute. A high efficiency is created through this increased speed and the reversing action which alternately crushes with manifold pressure nips, then whips vigorously to get rid of dust. Performance is automatic — needs practically no attention because balanced scrays stop the machine if cloth supply gets out of balance with capacity, thus safe-guarding your material.



MODEL CCT4 is a dual unit automatic continuous crusher of 2 units in tandem.

MODEL CCNB4 is a single unit automatic continuous crusher of same capacity as our dual unit.

These Continuous Crushers make possible one single continuous operation of acid soaking, drying, baking, and crushing. Continuous neutralizing machine is available to run in tandem with them if desired.

RIGGS AND LOMBARD INC.

FOOT OF SUFFOLK ST., LOWELL, MASSACHUSETTS

AGENTS: Paul A. Merriam Co., P.O. Box 86, Prov., R. I. • Larry T. Nelson, 860 3rd St., Santa Monica, Calif. Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill. • F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C. A. Harold Zayotti, Jr., P.O. Box 125, Riverton, N. J. • H. E. Mott Co., Limited, Brantford, Ontario, Canada

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LOST . . . one day's production

while this roll was being changed

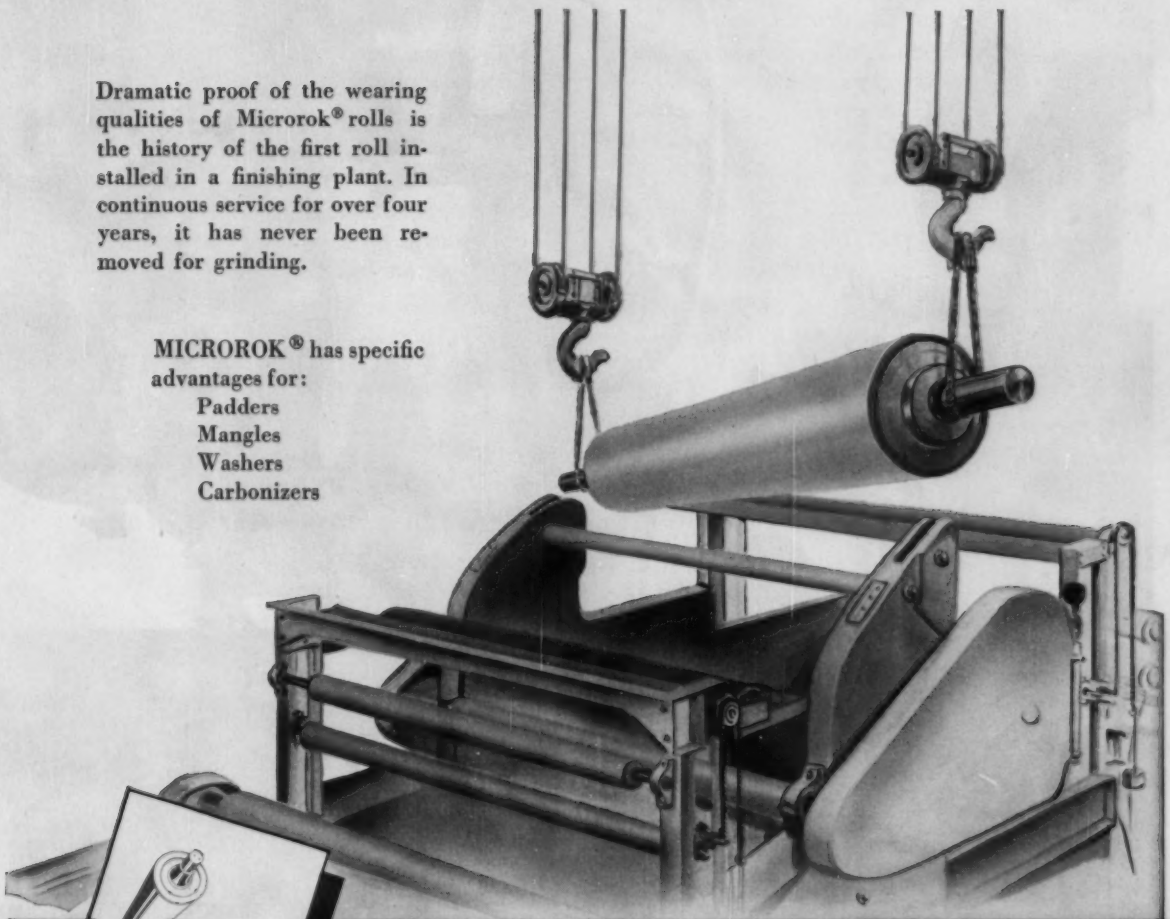
Although the actual grinding of bottom squeeze rolls is not in itself too expensive, the down-time required for the long and difficult job of removing these heavy, hard-to-get-at rolls can result in a serious loss of production.

Alert textile finishers, aware of this problem, are turning more and more to wear-resistant MICROROK® covered rolls by Stowe-Woodward, Inc. For complete information on MICROROK® rolls and their many advantages, contact your Stowe-Woodward Sales Engineer or write for Bulletin 504.

Dramatic proof of the wearing qualities of Microrok® rolls is the history of the first roll installed in a finishing plant. In continuous service for over four years, it has never been removed for grinding.

MICROROK® has specific advantages for:

- Padders
- Mangles
- Washers
- Carbonizers



S-W INC.

STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN • NEWTON 64, MASS. • GRIFFIN, GEORGIA

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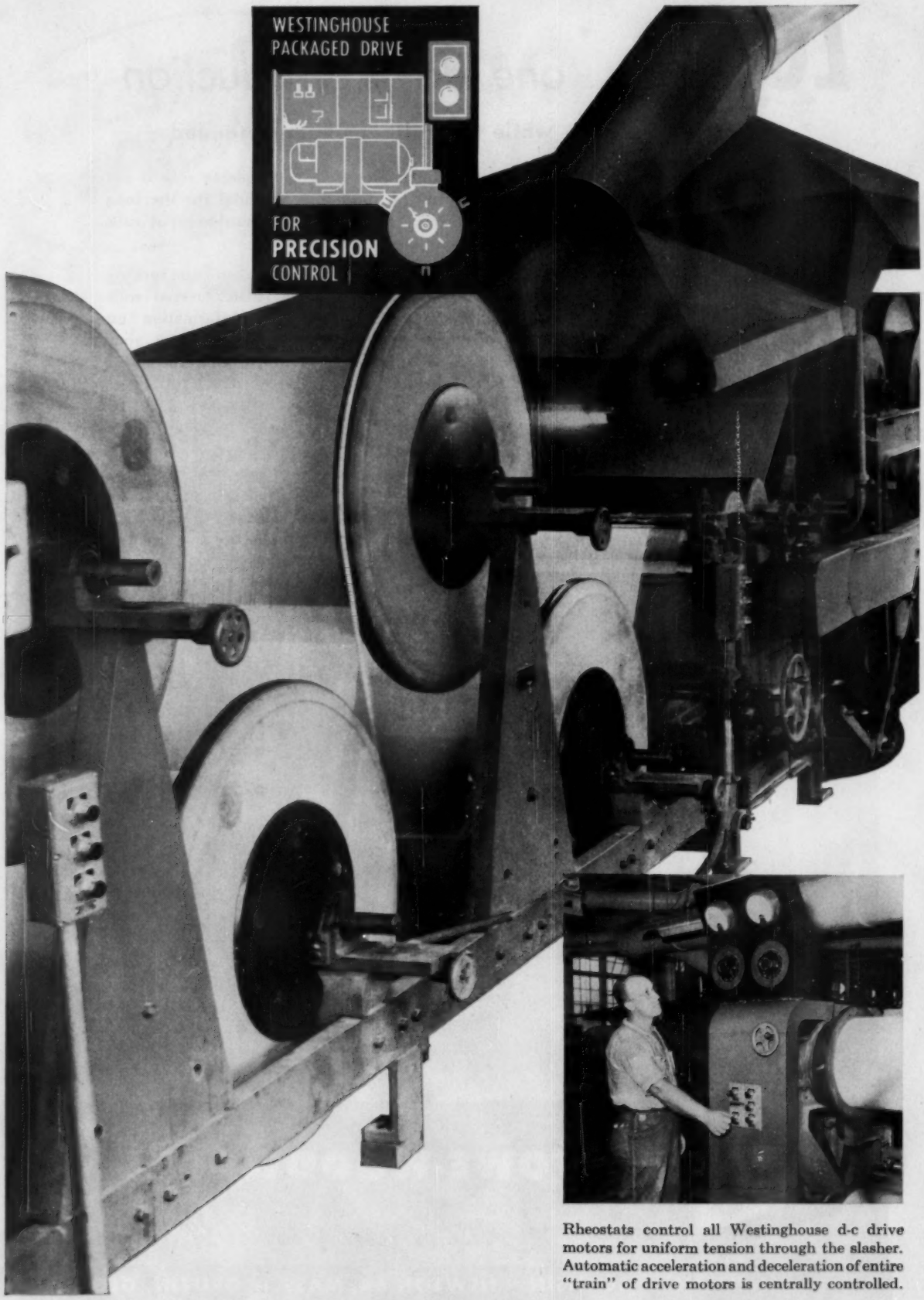

Rheostats control all Westinghouse d-c drive motors for uniform tension through the slasher. Automatic acceleration and deceleration of entire "train" of drive motors is centrally controlled.

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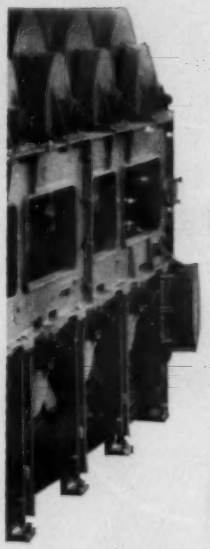
"Westinghouse AV-DRIVE doubles slasher production at a plant of The Kendall Company,"



says Engineer at Newberry, S. C. Kendall plant

Speed of the Kendall slashers, handling cotton warp yarn can be varied from over 100 yards per minute with less than 1,000 ends to a somewhat slower speed for over 2,500 ends. Rugged and dependable Westinghouse AV Drive permits production of about 1,750,000 yards of cloth each week at the Mollohon plant.

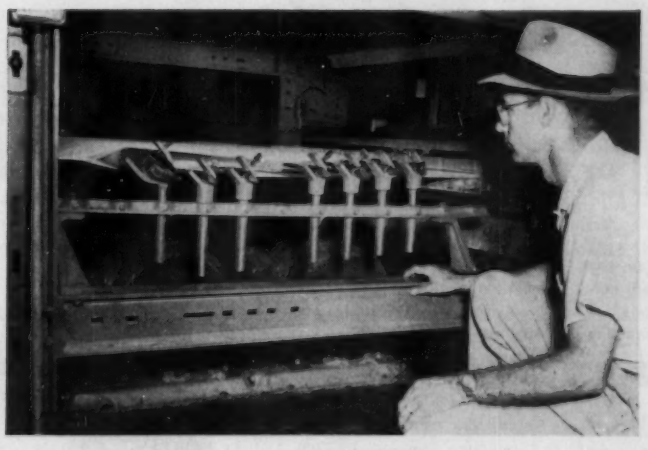
Two Westinghouse AV Drive-equipped slashers have replaced *four* weighted friction clutch-type units that required manual adjustments. "The AV Drives have saved us a lot of money, made our sizing operation completely automatic and doubled our production," states The Kendall Company engineer.

To learn how the versatile Westinghouse AV Drive can make your production more profitable, call your local Westinghouse representative or write Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-22012

YOU CAN BE SURE...IF IT'S

Westinghouse



Inspector checks Mollohon plant slasher as machine sizes cotton warp yarn. Precision control prevents breakage of delicate yarns and time-consuming rethreading.

AV Drive, providing on-the-spot conversion of plant distribution system a-c voltage to the required direct current for precision control of the drive motors.

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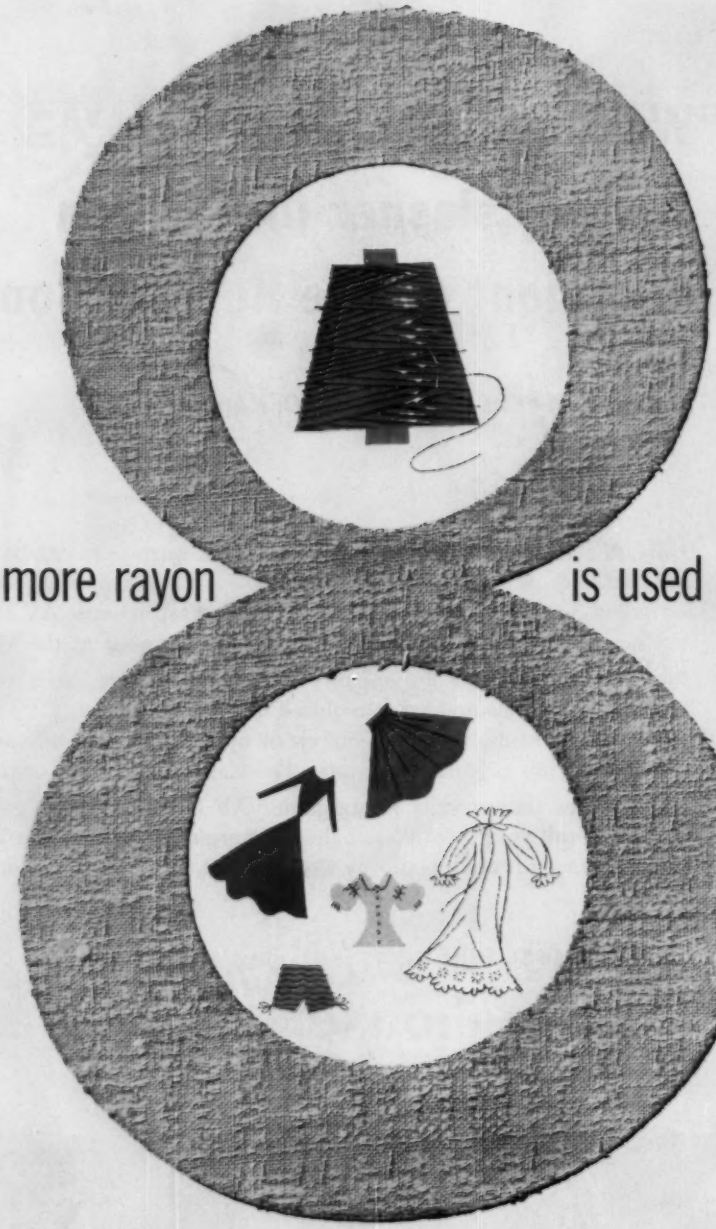

8 times more rayon is used in blends than any other single synthetic

Blended fabrics—for women's wear, home furnishings or any other end products—must be designed to offer satisfactory performance. It's no accident that more and more converters are using modern Avisco rayon fibers in blends—proudly identifying them with the Avisco Integrity Tag.

For only rayon—

* takes color so beautifully and holds it so well
* adds luxury to texture, gives fabrics a soft hand
* is absorbent, comfortable, tailors superbly
* resists fading, moths, static, shrinking
* offers top quality and value at low price

Only those blended fabrics that contain Avisco rayon fibers and meet the requirements of the Avisco Integrity Program qualify for the Avisco Integrity Tag. No matter what else is in the blend, your customer is buying the wonderful advantages that only rayon can give. This Tag is a trusted symbol of tested fabric performance.

Doesn't it make sense for everyone on your sales force to know these important facts?

AMERICAN VISCOSE CORP.
350 Fifth Avenue, New York 1, N. Y., LA 4-7200

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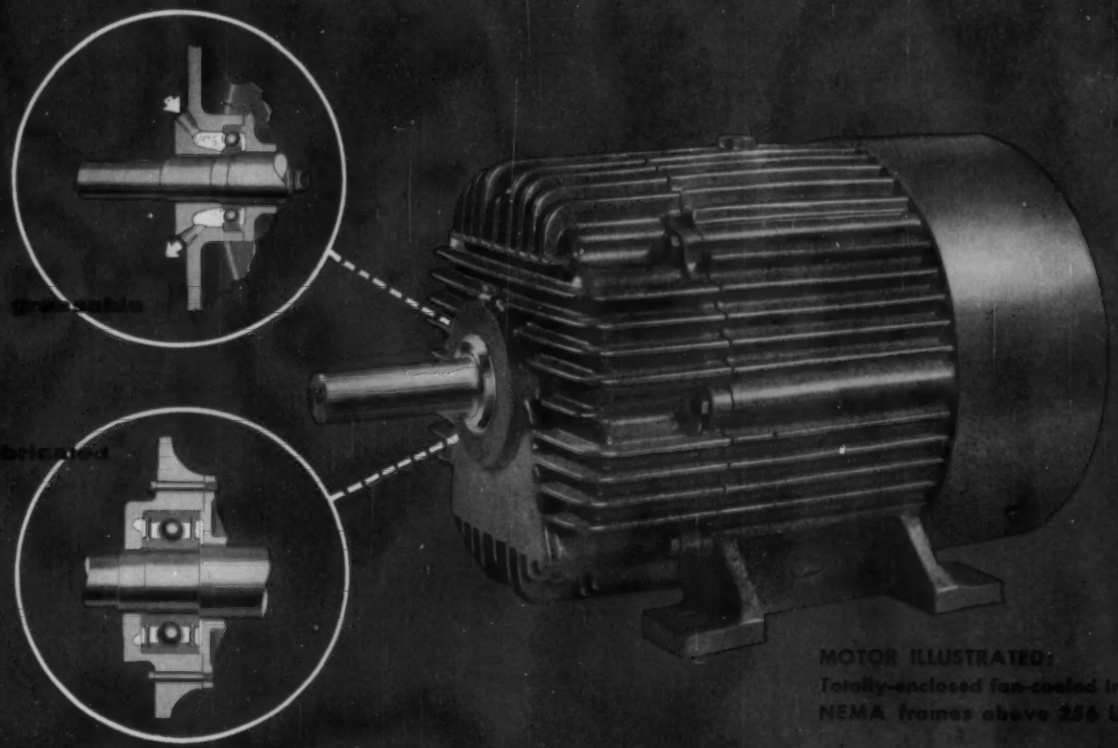
YOUR CHOICE of motor bearings . . .



—when you specify ELLIOTT Crocker-Wheeler Type N integral horsepower motors

Whatever your operating conditions or maintenance practice, Crocker-Wheeler offers the motor bearing best adapted to your needs or preference.

The Open Greasable type
requires only infrequent lubrication. All old grease is positively flushed out, eliminating risk of forcing grease into motor interior. An external grease reservoir helps seal and protect the bearing. The inner cap and grease reservoir prevent rust or corrosion from within.

Prelubricated bearings
are furnished for applications requiring operation without regular service lubrication. They are sealed cartridge-type, factory grease-filled, with inner protective cap.

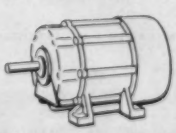
Choice of bearings
is another design feature of the new Elliott Type N motor line. These motors are honestly new—inside and out. We think you'll agree that they incorporate every important feature that distinguishes a modern motor.

W7-1

OTHER C-W TYPE N MOTOR ENCLOSURES

Totally-enclosed non-ventilated

Dripproof Protected


Totally-enclosed, fan-cooled Frames 256 U and smaller

ELLIOTT Company
CROCKER-WHEELER DIVISION
Jeannette, Pennsylvania

We will be glad to send a copy of this new booklet describing the complete line of Elliott C-W type N motors. Ask for Bulletin PB 6000-6.

Shining Success in the Knitting Field

LUREX MM

made with MYLAR

Visit the Lurex Booths (136, 137, 138)
at the Knitting Arts Exhibition.

What are the major advantages of Lurex MM in knitting?
Lurex MM combines high brilliance with exceptional softness and pliancy. Whatever you make with Lurex MM has a sales-appealing "soft" touch.

How about the flex life of Lurex MM?
Lurex MM withstands the repeated stress which occurs during bending—a vital factor in your knitting operations.

Who developed Lurex MM?
Lurex MM is a patented† Dobeckmun metallic yarn. This means your production is backed by Dobeckmun's long and successful experience with Mylar.

How strong is Lurex MM?
Lurex MM is the metallic yarn that offers maximum strength without sacrificing delicacy.

What about heat resistance of Lurex MM?
Lurex MM has remarkable heat resistance. Permits fabrics to be dyed at the boil; withstands extremes of heat setting; may be piece mercerized and pre-shrunk.

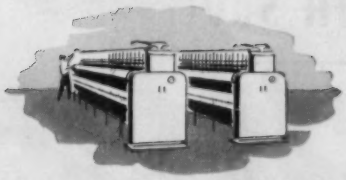
Do customers know the name Lurex MM?
The name Lurex is backed by 10 years of advertising and promotion to consumers and the trade. Your customers know Lurex and their customers know Lurex, too.

*MYLAR IS A REGISTERED DU PONT TRADEMARK †U.S. Pat. No. 2714569

Feature the name that's known in metallic yarns—Lurex, non-tarnishing metallic yarn made only by the Yarn Division of

The Dobeckmun Company · Cleveland 1, Ohio · New York: 350 Fifth Avenue · London · Amsterdam

Berkeley, Calif. • Boston • Philadelphia • Charlotte, N. C. • Chicago • Detroit • Manufacturing Affiliates in Canada: William B. Stewart & Sons Ltd., Toronto and Montreal



"..Higher loom speeds made lubrication difficult!"

When a large Southern weaving plant recently had a problem in loom drive lubrication, Sinclair's Representative V. V. Motley, Jr. was asked for a recommendation. He reports:

"This plant had experienced difficulty in lubricating the gear trains that drive the looms. The reduction gears are shielded and the pinions rotate at about 1700 RPM. A grease could not be applied readily or satisfactorily; and, an oil did not provide the retention necessary for the desired lubrication period. In desperation, mixtures of oil and grease had been used in an attempt to lubricate the gears."

NEEDED: AN ADHESIVE OIL. Mr. Motley continues, "Having had experience with problems of this type, I recommended Sinclair DARTAC #15. I knew it would have the necessary body and adhesiveness needed to solve the problem. Trial runs at this plant were so successful that all four of the company's plants were switched to DARTAC" concludes Mr. Motley.

If you have a problem in textile lubrication, get the benefit of a Sinclair Representative's recommendation. Call a local Sinclair office or write to Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

SINCLAIR TEXTILE LUBRICANTS

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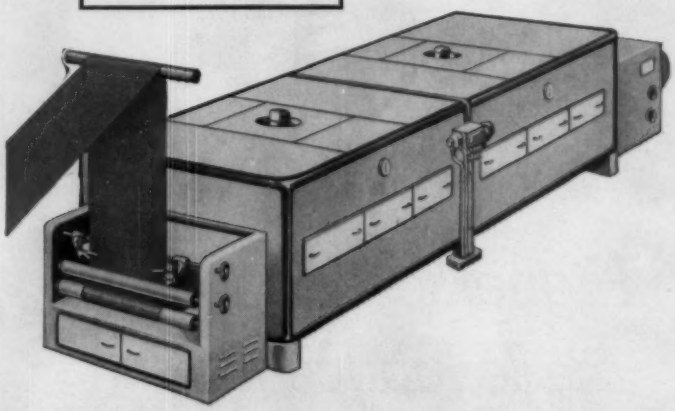
Shown For The First Time

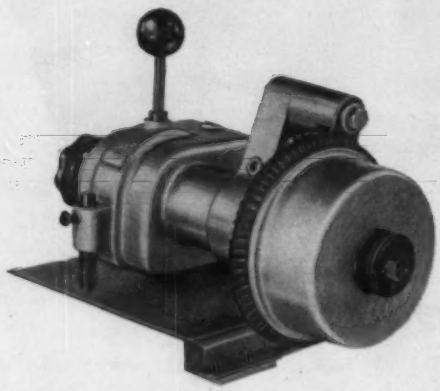
Cosa's Textile Machinery

At The 43rd
KNITTING ARTS EXHIBITION **BOOTH 500**

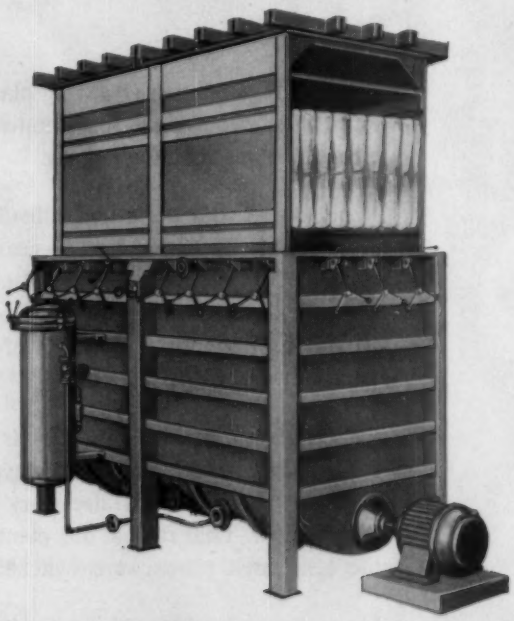
In every one of Cosa's textile machines you'll find the most advanced design now available to the field. Stop in at Cosa's Booth 500 at the 43rd Knitting Arts Exhibition and see them. You'll be more than surprised at the outstanding improvements they offer you in production and quality—factors of utmost importance to today's textile industry.



Vits Lay-on-air Dryer Features extremely high efficiency at speeds of 100 yards per minute or higher. Evaporates 90 lbs. of water per sq. yd. of dryer per hour.



Vits Overfeeding Head For all types of tenters—provides a *positive* overfeed of +40% to −5% with pin-on-pin action. Speeds up to 120 yards per minute.



Scholl Skein Dyer High temperature, high pressure unit provides completely uniform color impregnation. Sizes for 50 to 250 lb. dye lots.

OTHER COSA TEXTILE EQUIPMENT

- Mahlo Textometer—Moisture Controller
- Vits Drying Tenter
- Vollenweider HP1 Shearing Machine
- Projectina Optical Analyzer
- Saladin Flock Printing Machine

Write for Additional Information

COSA TEXTILE DIVISION

Lay-on-air & Tenter Dryers, Padders & Other Finishing Mach. · Spindles · Roller Bearing Inserts · Automatic Moisture Control & Others

COSA CORPORATION, 405 LEXINGTON AVENUE, NEW YORK 17, N. Y.

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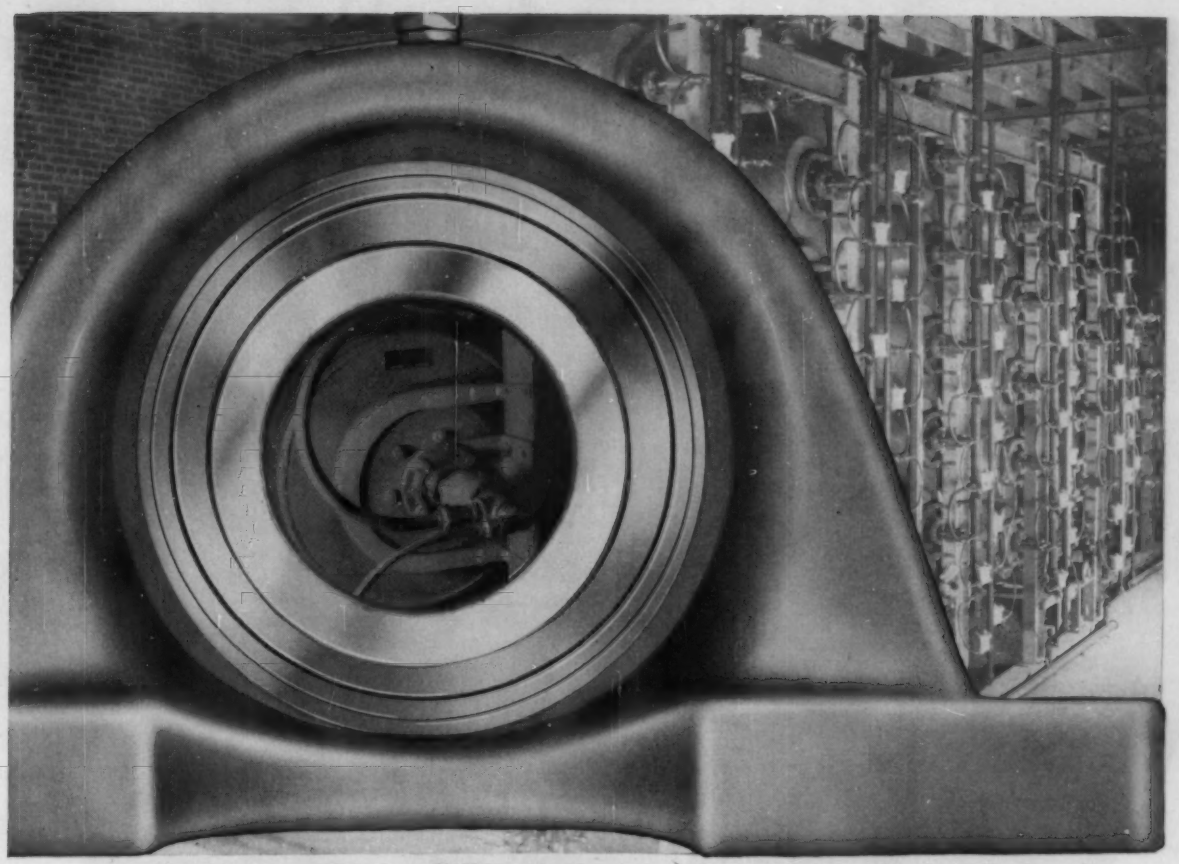

LOOK INTO SEALMASTER QUALITY FOR A NEW PERSPECTIVE ON BEARING PERFORMANCE!

Performance originates on the drawing board, as your own engineers will tell you. It's the engineering that's built into a product that makes it outperform.

In today's highly competitive textile market, efficient high speed production is essential. Efficient production is largely a matter of efficient machines. Machinery, on the other hand, is no more efficient than the smallest component.

SEALMASTER Ball Bearing Units with their exclusive combination of engineering features are built to outperform—the kind of quality you'll find well worth looking into.

Consult a SEALMASTER factory representative or distributor soon.

SEALMASTER BEARINGS A DIVISION OF STEPHENS-ADAMSON MFG. CO. • 10 RIDGEWAY AVE., AURORA, ILL

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COMPLETE CONTROL

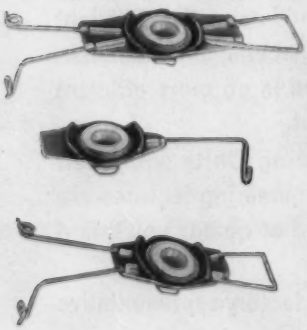
of New Fibers and Filaments with

HERR

Special Conical Rings and Special Flyers

See us at Booth No. 38 & 39 Knitting Arts Exposition

Hyatt B. Atwood
W. W. Woodard
Robert M. Leach
James McLean



HERR Flyers produce light tensions at high speeds, perfectly balanced for accurate yarn control and reduced vibration.

There is a HERR Conical Ring for the spinning or twisting of any yarn.

Having problems with new fibers? Don't waste time experimenting. New physical characteristics of the fibers require changes in the processing equipment to attain best results. Call Herr for the best Conical Ring and Traveler combination to give you complete control of new fibers and filaments. Write for information today!

HERR Manufacturing Company, Inc.

309 Franklin St., Buffalo, N. Y.

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES

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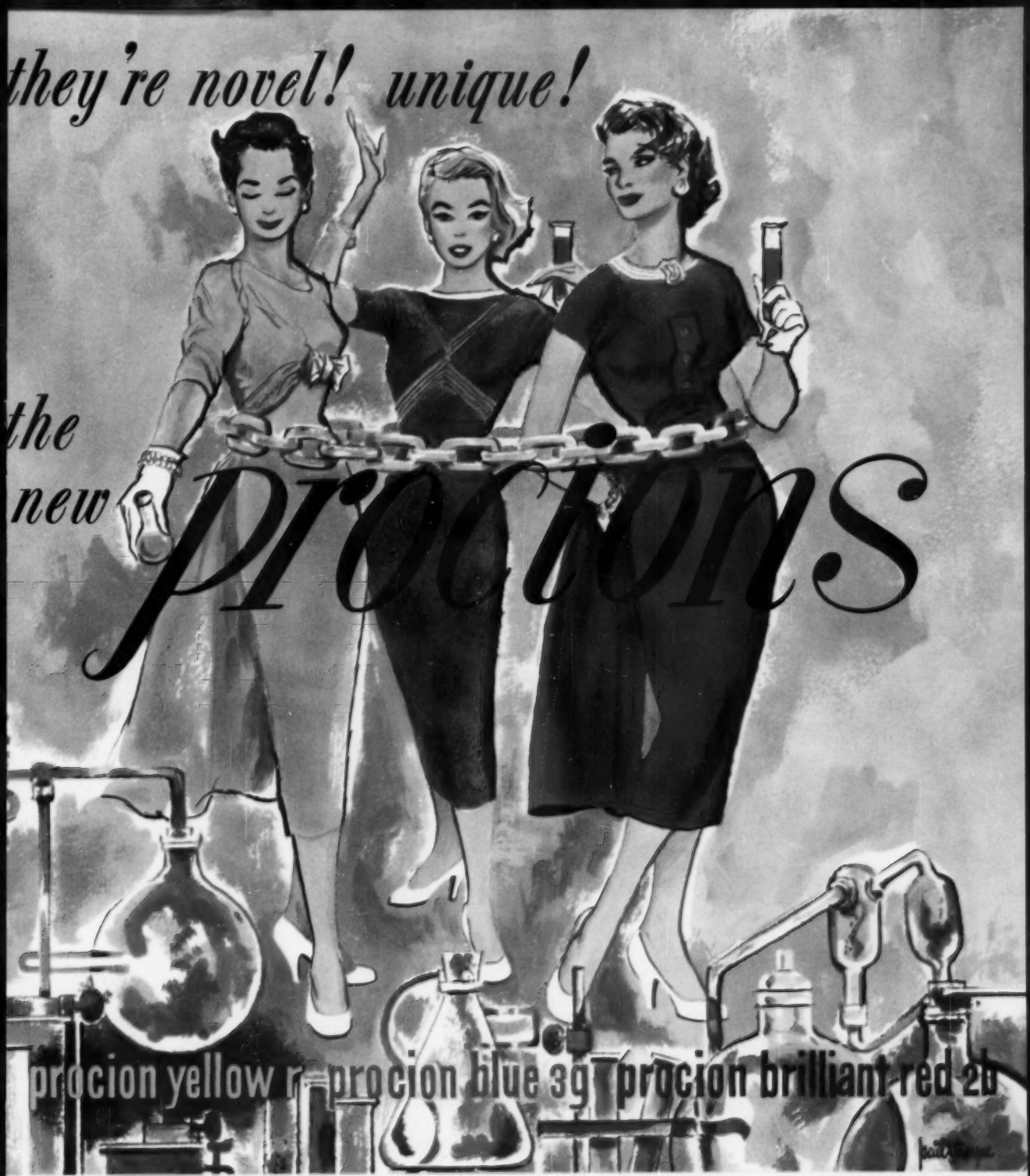


DIRECT CHEMICAL LINKAGE MAKES THEM FASTER... an entirely new concept in dyeing

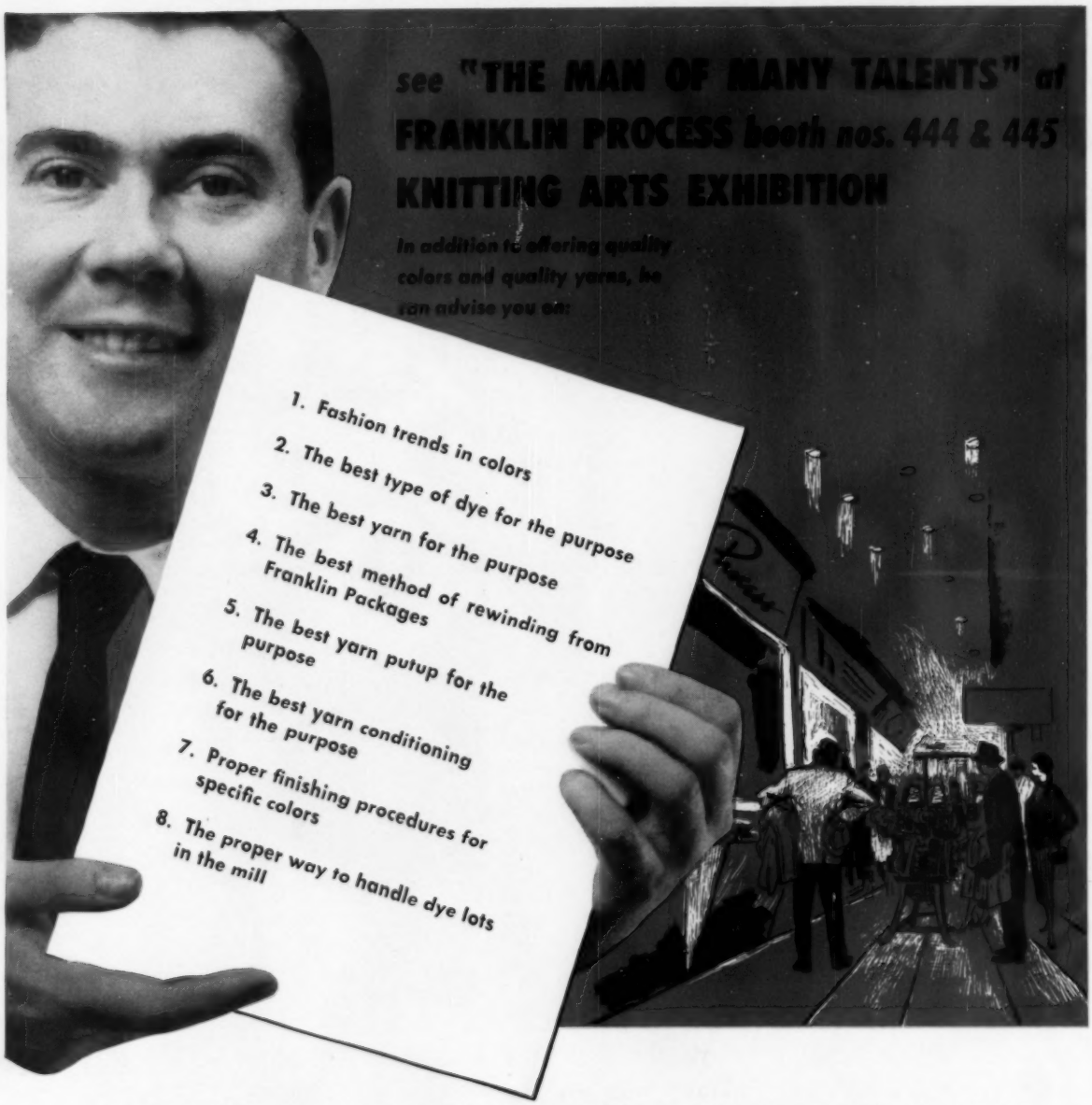
Bright Fast Shades
By dyeing on cotton, rayon, nylon; by printing on cellulosic fabrics, wool, silk.
Tailored for High Speed Continuous Operations
High Aqueous Solubility · Low Physical Affinity
Mutually Compatible

PROCIONS—fixed forever

AHCO DYES

ARNOLD, HOFFMAN

ARNOLD HOFFMAN & CO., INC. • EST. 1815
OFFICES & TECHNICAL SERVICE LABORATORIES
PROVIDENCE, ATLANTA, CHARLOTTE, TETERBORO
ASSOCIATED WITH IMPERIAL CHEMICAL
INDUSTRIES, LIMITED • LONDON, ENGLAND


see "THE MAN OF MANY TALENTS" at
FRANKLIN PROCESS booth nos. 444 & 445
KNITTING ARTS EXHIBITION
In addition to offering quality colors and quality yarns, he can advise you on:
1. Fashion trends in colors
2. The best type of dye for the purpose
3. The best yarn for the purpose
4. The best method of rewinding from Franklin Packages
5. The best yarn putup for the purpose
6. The best yarn conditioning for the purpose
7. Proper finishing procedures for specific colors
8. The proper way to handle dye lots in the mill

Frequently "the man of many talents" (your Franklin Process representative) can give you such information on the spot. But if not, he can call on the most completely equipped and the best staffed laboratory in the business for prompt, dependable answers.

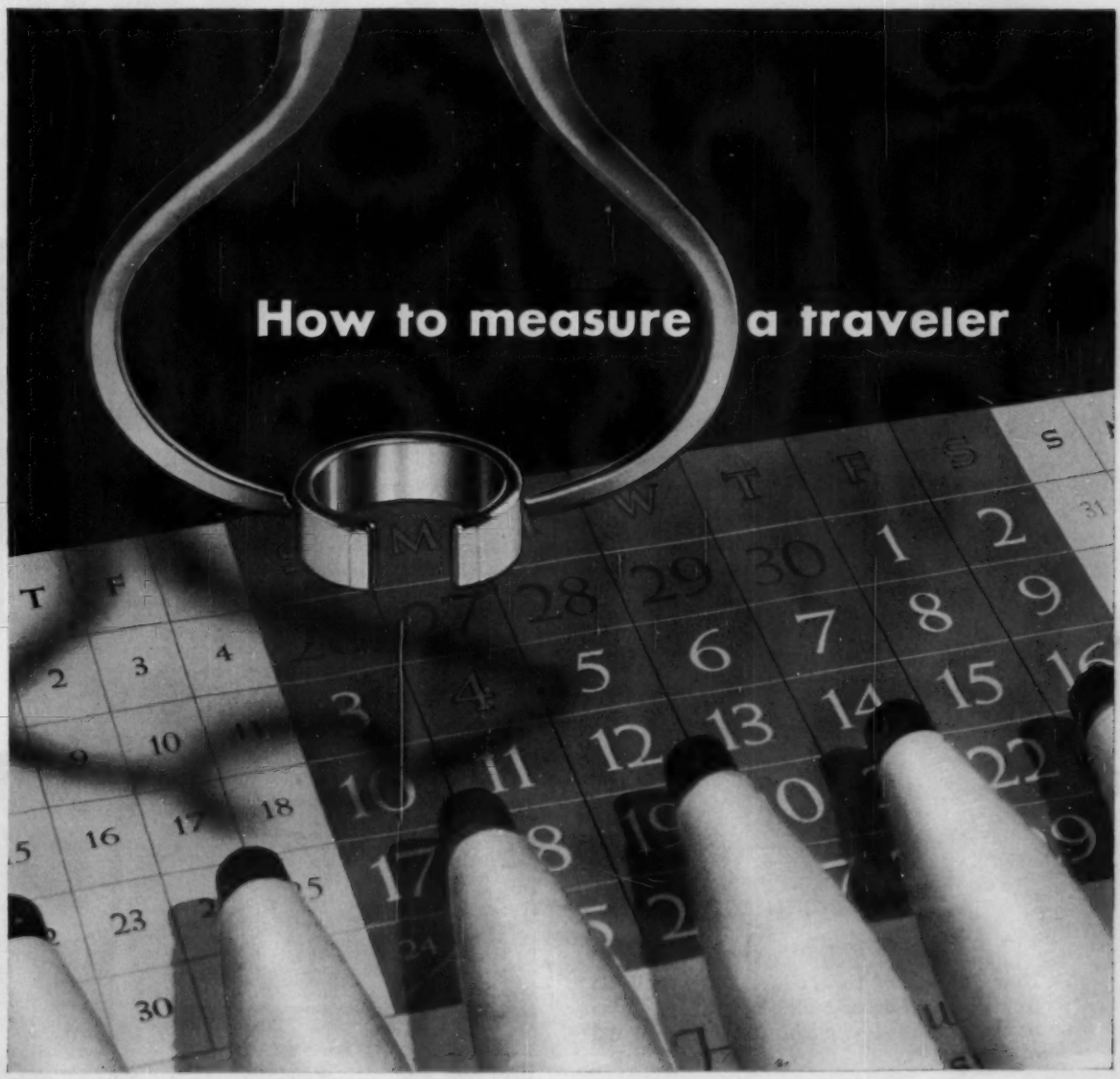
Be sure to make his acquaintance at the Knitting Arts Exhibition and to discuss your colored yarn problems with him. No obligations.

Franklin Process

Yarn Merchants and Largest Package Dyers in the World — Dyeing Exclusively on the Franklin Spring

Providence • Philadelphia • Greenville • Chattanooga
Fingerville, S. C.
New York Representatives — 40 Worth Street

X-ray view of Franklin Package — the "secret" of uniform shades. Don't say "package dyed". Say "Franklin Process Dyed".



Measure a traveler by days of trouble-free service, and by pounds of first-quality yarn delivered. Travelers vary widely by this test, even though they *look* alike and meet dimensional specifications.

Under *any* conditions, you can be sure of maximum production per traveler when you rely on Victor experience and quality control.

That's the reason why Victor Travelers are chosen for over 12,000,000 spindles. Mill men everywhere find that Victor quality pays off, consistently, in longer traveler life . . . with fewer ends down . . . at higher spinning and twisting speeds.

A Victor Service Engineer will help you select Travelers that measure up to maximum production on any yarn you are running. Write, wire, or phone for prompt service.

VICTOR Ring Travelers

VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . . 20 Mathewson Street . . . . . Tel. DExter 1-0737

GASTONIA, N. C. . . . 914-916 East Franklin Ave. . . . Tel. UNiversity 4-3221

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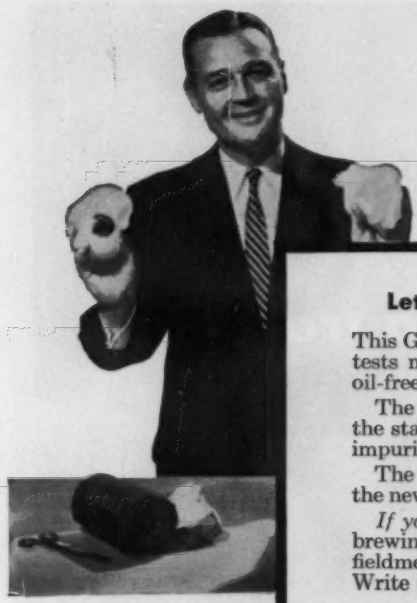


Is the oil-free air you use ***really*** *oil-free?*

Let us make this sterile cotton test on your air compressors

This Gardner-Denver fieldman is showing you the results of two air discharge tests made on two air compressors—one of them the *new* Gardner-Denver oil-free Model CACB.

The cotton filter on your left, upon removal from the air discharge pipe of the standard compressor, showed discolorations made by oil stains and other impurities.

The cotton filter on your right was removed from the discharge pipe of the new CACB compressor—*entirely free from oil vapor and other foreign matter.*

If you must have pure, oil-free air for instrument controls, food processing, brewing, distilling, or the manufacture of plastics and other products, our fieldmen will come on call to test your compressors for oil contamination. Write Gardner-Denver Company, Quincy, Illinois.

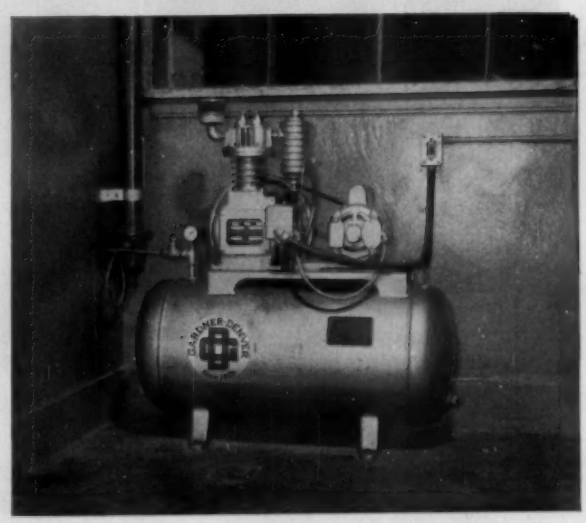
It's oil-free . . . if it's from the *new* CACB!

Another Gardner-Denver "First"—oil-free air from a small compressor

Now, for the first time, oil-free air is available from a small, space-saving compressor—base or tank mounted—for instrument control and other small-capacity uses.

The heart of the new Gardner-Denver CACB oil-free compressor is the carbon parts which require no oil or water lubrication in the cylinder.

The CACB is a single-stage, air-cooled compressor that supplies 4 to 5 cubic feet of oil-free air per minute. It is suitable for discharge pressures of 40 to 100 psi. Automatic start and stop controls are supplied as needed. In addition, it has the same quality construction features of all Gardner-Denver tank-mounted compressors; for example, an alloy crankshaft with self-lubricating main bearings on *both sides* of the throw.



Write for complete details.

ENGINEERING FORESIGHT—PROVED ON THE JOB
IN GENERAL INDUSTRY, CONSTRUCTION, PETROLEUM AND MINING

GARDNER - DENVER

Gardner-Denver Company, Quincy, Illinois

ATLANTA, GA.; BIRMINGHAM, ALA.; KNOXVILLE, TENN.; WASHINGTON, D. C.; NEW YORK, N. Y.; PHILADELPHIA, PA.; PITTSBURGH, PA.; NEW ORLEANS, LA.; LOUISVILLE, KY.

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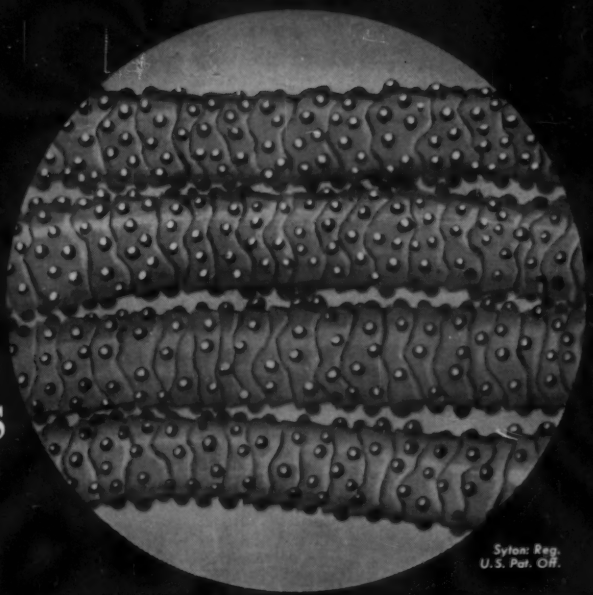
How to get finer yarns from coarser stocks with SYTON



Millions of submicroscopic particles of Syton increase interfiber drag, hold fibers in place, enable you to spin finer yarns.

Here are more advantages you get with Syton:

- Fast, easy carding—reduces harmful effects of static electricity
- Lighter, finer counts from coarser fibers
- Less twist for the same strength
- Fewer ends down
- More uniform, condensed rovings
- Higher spinning speeds
- Increased tensile strength
- High interfiber drag
- Improved color
- Improves processing of 100% synthetic fibers on woolen systems

Wait a minute! Why not get the full story? It's all in a booklet called "Profitable Spinning of Wool and Wool Blends with Syton"—technical data, illustrations, case histories. Write now to MONSANTO CHEMICAL COMPANY, Inorganic Chemicals Division, 710 North Twelfth Street, St. Louis 1, Missouri.

SYTON is an odorless, translucent, pH-stable silica sol for use alone or with other finishes. It distributes uniformly; requires no special equipment, aftertreatment or curing. It is highly resistant to dry cleaning yet removes easily from stock by mild scouring.

MONSANTO
CHEMICALS—PLASTICS

SERVING INDUSTRY... WHICH SERVES MANKIND

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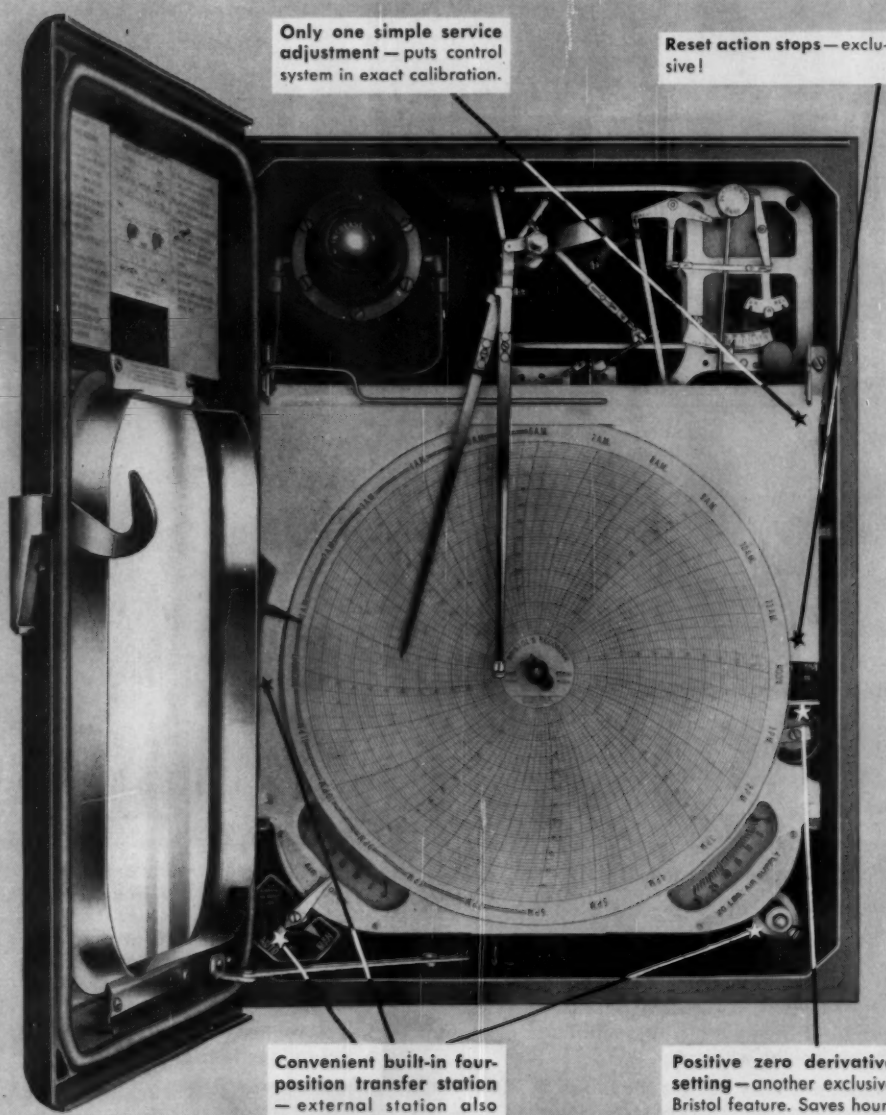
Are you sure you


Only one simple service adjustment — puts control system in exact calibration.
Reset action stops — exclusive!
Convenient built-in four-position transfer station — external station also available.
Positive zero derivative setting — another exclusive Bristol feature. Saves hours of initial adjustment time for difficult processes.

MADE IN MODELS FOR THESE CONTROL MODES:

1. **Fixed narrow band** (on-off).
2. **Proportional**—to 100% and to 30%.
3. **Reset with wide band**—rates 0.1 to 10 or 1 to 300 repeats per minute. Proportional band to 400%.
4. **Derivative** (rate)—Derivative time 0.2 to 20 min., plus zero derivative setting.
5. **Reset plus derivative**—proportional band, reset rate and derivative time as shown above.

WILL HANDLE THESE CONTROL PROBLEMS:

1. Cascaded control
2. Selective control
3. Ratio control
4. Time-program control
5. Pneumatic transmission.

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are getting the best in pneumatic controllers?

Before you buy another controller check these advantages of the new Bristol Series 500 Free-Vane® Pneumatic Controller

FINEST MEASURING ELEMENTS

Bristol Series 500 Pneumatic Controllers are equipped with precision Bristol measuring elements—the widest selection of high-quality measuring elements available with any line of control instruments. You'll find models for control of: **temperature, pressure, vacuum, draft, absolute pressure, liquid level, flow, humidity, density, pH, and a large number of other variables measurable with electronic potentiometers and bridges.**

The sustained, predictable performance of Bristol measuring elements is one reason why you'll find more Bristol recording pressure gauges in use *than all other makes combined.* The new, completely linear Bristol Dual-Filled Vapor Pressure Measuring Element used in Series 500 Thermometer Controllers is the first really big advance in this field of measurement in 25 years. The Bristol Absolute Pressure Element, available in ranges as low as 0-6 mm of mercury absolute, also leads in its particular field. These are just a few of many examples of Bristol leadership in the development and improvement of measuring elements.

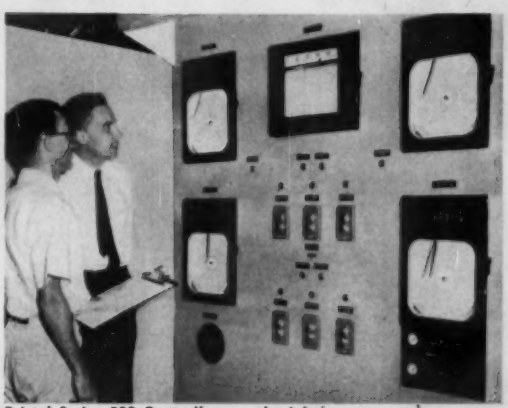
ADVANCED CONTROL SYSTEM FEATURES

Many features *found on no other pneumatic controller* assure better control with the Bristol Series 500: Reset action stops on reset models prevent loss of control due to prolonged deviation from set point; true zero derivative setting (on derivative models) can save hours of initial adjustment time; easy shift to wider proportional band (½ to 200% or 1 to 400% on wide band models) *without recalibration.*

BEST MAINTENANCE RECORD

One simple adjustment puts a Series 500 controller in exact calibration.

Basic simplicity, accurate design, closely held manufacturing tolerances make this single adjustment all that's necessary—even after complete disassembly and reassembly with replacement parts.



Bristol Series 500 Controllers on the job in new modern processing plant. Absolute pressure, steam flow, and liquid levels are variables controlled here.

This practically "built-in" calibration is typical of the foresight and engineering planning that make the Series 500 the easiest pneumatic control system on the market to service. Cut-and-try methods are eliminated. No special maintenance skills are required. All parts are completely interchangeable. The result: a truly superlative maintenance record in thousands of industrial plants.

NATION-WIDE SERVICE

Series 500 Controllers are backed up by the kind of service a quality product requires. The facilities of the main factory, four strategically-located branch factories, and factory-trained service engineers operating out of 44 principal cities across the United States and Canada are on call whenever and wherever needed to help you get the most out of your Bristol Pneumatic Controllers.

GET COMPLETE INFORMATION

. . . on the Bristol Series 500 Pneumatic Controller before you buy another instrument! Fully described in Bulletin A130. Write: The Bristol Company, 103 Bristol Road, Waterbury 20, Conn. 4.76

**T.M. Reg. U. S. Pat. Off.*

BRISTOL *TRAIL-BLAZERS IN PROCESS AUTOMATION*

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

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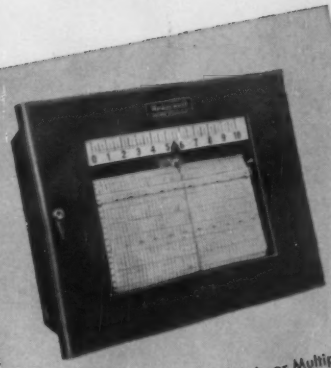
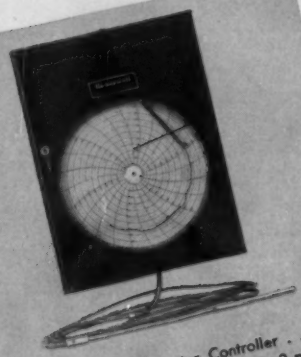


Strip Chart Recorder—Single or Multiple Point . . . Records all types of variables. Choice of pen speeds and chart speeds.

Recording Wet and Dry Bulb Thermometer Controller . . . Electric or pneumatic control, both pens.

Integral Cam Programmer . . . Enables complete 24- or 168-hour program to be precast. Electric or pneumatic control on one or both pens.



Recording Thermometer Controller . . . Wide choice of control systems. 2-pen recorders available with choice of control.

Circular Chart Recorder . . . Has large 28" indicating scale, is available with electric or pneumatic control. Extremely accurate and dependable.

One —

Small-Case Indicating Pressure and Temperature Controllers . . . Require less than 1 square foot of panel. Ranges from —40 to 1000 F. Pneumatic control.

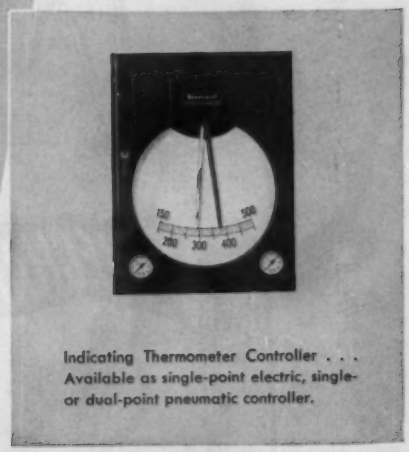
Hair Hygrometer-Thermometer . . . Records humidity and temperature on one chart. Spring wound or synchronous electric chart drive.

Flow Meter . . . Available with electronic integrator to totalize flow as indicated on a direct-reading counter. For accounting and control.

Recording Pressure or Liquid Level Controller . . . Wide choice of control systems. Control on either or both pens of 2-pen model.

Moist-O-Graph . . . For slashers and pickers. Large, easily-read dial sets for practically any combination of fibers, sizes or blends.

Diaphragm Control Valve—Series 800 . . . For heavy-duty service. In standard sizes from 1 to 8-inch single seated—to 12-inch double seated.



Indicating Thermometer Controller . . . Available as single-point electric, single- or dual-point pneumatic controller.

—Stop SHOPPING...

WHETHER it's temperature, pressure, pH, flow, liquid level, humidity, or any other important variable you want to measure or control, Honeywell makes just the instrumentation for you. Our line is as broad as the textile industry's requirements . . . you can choose exactly what you need.

This means you get all the instrumentation your process requires from a single source, so there is undivided responsibility for the complete installation. And you are assured that equipment suggested for your process is recommended without bias. With a complete line there is no need to over-sell or under-equip.

For the new process, the modernization program, or a replacement problem, find out how Honeywell can go to work . . . anywhere in the textile industry. Call your nearest Honeywell sales engineer. He's as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR Co., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

H HONEYWELL

MINNEAPOLIS **Honeywell**

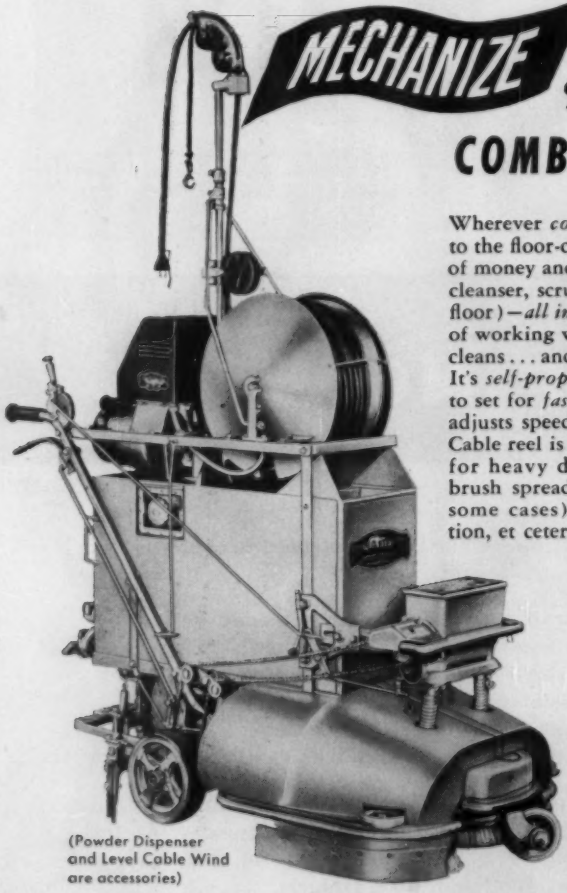
BROWN INSTRUMENTS

First in Controls

Let's not clean away dollars and man-hours with costly, inadequate floor care

MECHANIZE *your floor-cleaning with a*

COMBINATION SCRUBBER-VAC!



(Powder Dispenser and Level Cable Wind are accessories)

Wherever *combination-machine-scrubbing* is the practical solution to the floor-cleaning problem, any lesser, slower method is wasteful of money and manpower. A *Combination Scrubber-Vac* applies the cleanser, scrubs, flushes if required, and picks up (damp-dries the floor)—*all in one operation!* Maintenance men like the convenience of working with this single unit . . . the thoroughness with which it cleans . . . and the features that make the machine simple to operate. It's *self-propelled*, and has a *positive* clutch. There are no switches to set for *fast* or *slow* — slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly. Cable reel is self-winding. *Model 213P Scrubber-Vac* shown at left, for heavy duty scrubbing of large-area floors, has a 26-inch brush spread. Cleans up to 8,750 sq. ft. per hour (and more in some cases), depending upon condition of the floors, congestion, et cetera.

Finnell makes *Scrubber-Vac Machines* in a full range of sizes, and in *self-powered* as well as *electric* models. From this complete line, you can choose the size and model that's exactly right for *your* job (no need to *over-buy* or *under-buy*). It's also good to know that you can lease or purchase a *Scrubber-Vac*, and that *a Finnell Floor Specialist and Engineer is nearby* to help train your maintenance operators in the proper use of the machine . . . to recommend cleaning schedules for most effectual care . . . and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 1904 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

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Have we checked Columbia-Southern lately? T. J.

First producer to improve shipments by promoting customer aids like the fusion welded tank car and the 55-ton single unit car.
Say, that's right!– DHT, Purchasing

First producer to reduce customer freight costs by opening facilities on the Ohio, pioneering the development of America's "Chemical River."
Everybody sure followed them!
CBW Traffic

First producer to cut customer costs by launching a fleet of high capacity barges for inland water deliveries.
I remember that! RPM, Finance

Still one of the nation's leading merchant producers of chlorine, with all the dependability of supply, control of quality, and depth of customer servicing this leadership implies.
No question about it!
JTH, Technical Staff

First producer to standardize on the tank car dome platform for added safety in customer unloading.
Meant a lot to us then– and now!
ANH, Plant Safety

So often, it costs less to deal with the leader.
Let's check Columbia-Southern today! DHT
RPM, ANH. CBW, JTH

COLUMBIA-SOUTHERN CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER · PITTSBURGH 22 · PENNSYLVANIA

DISTRICT OFFICES: Cincinnati • Charlotte • Chicago • Cleveland • Boston
New York • St. Louis • Minneapolis • New Orleans • Dallas • Houston
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IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

CHEMICAL PROGRESS WEEK-APRIL 8-12

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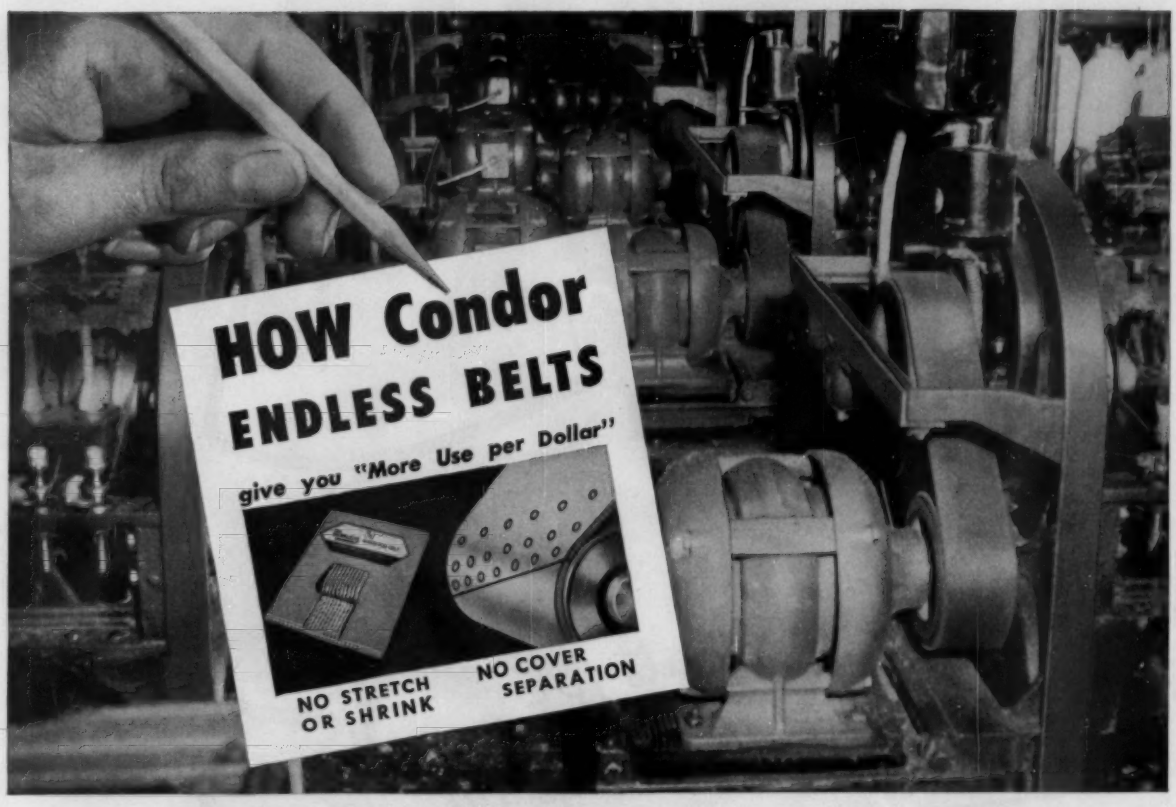

Condor Whipcord Endless Belts Boost Production

Steady, unfailing power delivery with high overload capacity, long life, and freedom from stretch or shrinkage result in greater efficiency at lower cost for machines equipped with Condor Whipcord Endless Belts. These all-purpose belts offer exceptional advantages for hard wearing installations—on drives with short centers, small take-up, small pulleys, reverse bends, high speeds and heavy loads at high tensions. Extremely flexible, they are ideal belts for machines where serpentine drives supply power for several operations. Condor Whipcord Belts feature an endless-wound, sealed-in cord construction which is de-stretched during manufacture. They will not shrink on the drive and are virtually unaffected by atmospheric changes. On many drives they have outlasted 3 to 10 ordinary belts.

EXTENSIBLE-TIP COVER SPLICE

R/M's exclusive Extensible-Tip cover-end splice "elasticizes" the splice area with a series of rubber rivets to dissipate stress when rounding pulleys. This eliminates cover separation . . . adds further to the longer service life of Condor Whipcord Belts.

CONDOR COMPENSATED BELT

On closed drives where belt fasteners are required, Condor Compensated Belt eliminates fastener trouble. A patented Manhattan process equalizes belt ply stresses when rounding pulleys. *Every* ply is under uniform tension and *every* ply pulls its full share of the load to eliminate ply rupture and separation—especially at the fasteners. Condor Compensated Belt holds fasteners up to 4 times longer than ordinary belt!

SELECTION OF DRIVING SURFACES

Both Condor Whipcord Endless Belts and Condor Compensated Belt are available in a selection of four driving surfaces to meet various machine tension requirements. Let an R/M representative show you how to boost production . . . get "More Use per Dollar" . . . with Condor Endless Belts and Condor Compensated Belt at your mill.

RM 604T

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Laundry Pads and Covers • Bowling Balls

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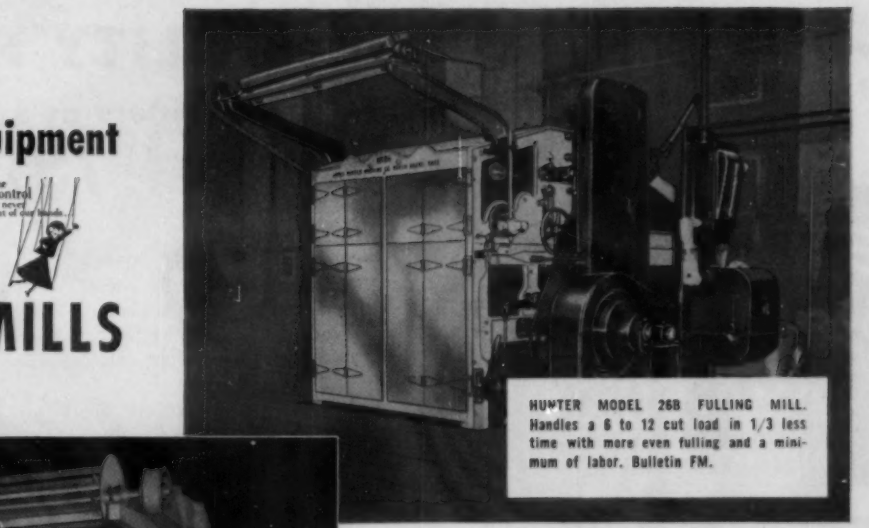
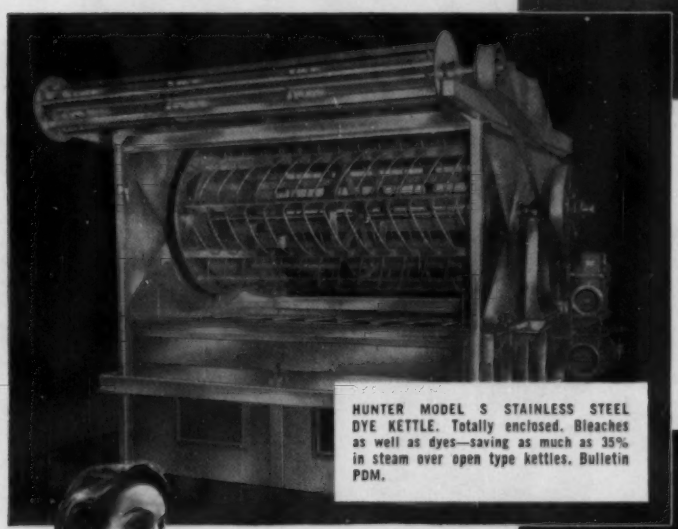
HUNTER

Wet Finishing Equipment Is Big In The Profit Picture At LEBANON MILLS



HUNTER MODEL 26B FULLING MILL. Handles a 6 to 12 cut load in 1/3 less time with more even fulling and a minimum of labor. Bulletin FM.

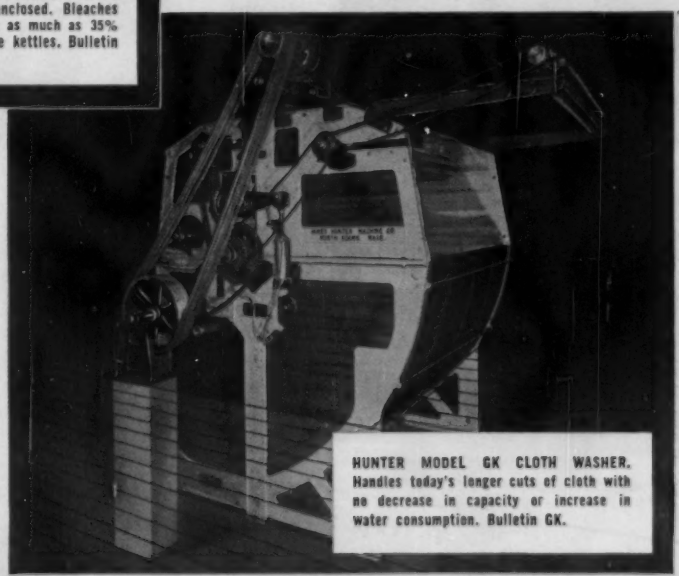


HUNTER MODEL S STAINLESS STEEL DYE KETTLE. Totally enclosed. Bleaches as well as dyes—saving as much as 35% in steam over open type kettles. Bulletin PDM.

For Wool, Cotton, Blends And ALL Synthetics...

Hunter Wet Finishing Machines, at Lebanon and leading mills everywhere, are proving their importance in the modern textile plant's economy. Counterbalancing mounting labor and materials costs, their speed, efficiency and quality output actually make bigger profit margins possible.

HUNTER IS IN THE PROFIT PICTURE WITH A COMPLETE LINE OF DRYING AND FINISHING EQUIPMENT FOR *EVERY* FABRIC REQUIREMENT!



HUNTER MODEL GK CLOTH WASHER. Handles today's longer cuts of cloth with no decrease in capacity or increase in water consumption. Bulletin GK.

JAMES HUNTER MACHINE COMPANY

BUILT BY HUNTER ...IT'S DEPENDABLE

NORTH ADAMS, MASSACHUSETTS FOUNDED 1847

plus production

- efficient operation of modern equipment
- less down time of equipment
- quick, easy repair... rapid parts delivery

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Guarantee TOP Performance and Maximum Life!

Specify THESE TOP QUALITY FEATURES...

(Standard on Miller Cylinders at no extra cost)

Specify CASE HARDENED CHROME PLATED PISTON RODS
On all Air and Hydraulic Cylinders

Benefits To You

CASE-HARDENED Piston Rods (52-54 Rockwell "C") provide practically complete protection against damage from hammer blows, wrench-dropping, mishandling, and similar occurrences. ***Available from Miller at no extra cost.***

The HARD CHROME PLATING over the case-hardened rods protects against scratch-damage and rust. ***Available from Miller at no extra cost.***

Specify "TEFLON" WIPERS
On all Air and Hydraulic Cylinders

Benefits To You

"TEFLON" Rod Wipers and "TEFLON" Hydraulic Piston Rod Seals withstand temperatures from—100°F. to plus 500°F. They are impervious to practically all known chemicals, including the fire-resistant, special, and standard hydraulic fluids in current use. ***Available from Miller at no extra cost.***

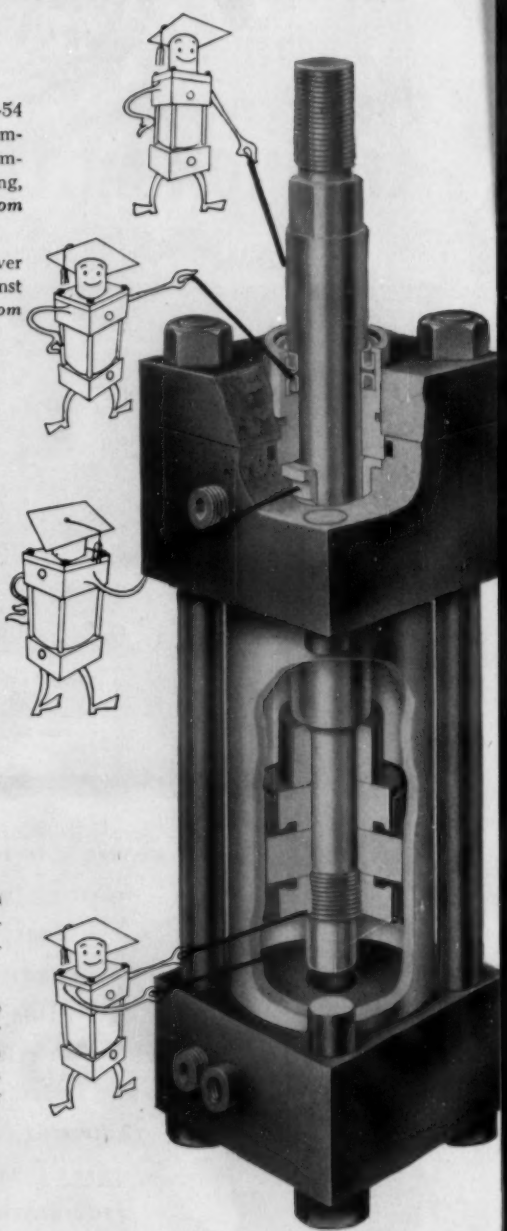
Specify TEFLON HYDRAULIC ROD SEALS
On all Hydraulic Cylinders

Specify RUST RESISTANT SURFACES
On all Air and Hydraulic Cylinders

Benefits To You

Highest quality Black Ferric Oxide Finish provides rust protection in air cylinder operation and on all cylinders during shipping and installation.

Cylinder heads, caps, mountings, pistons, followers, tie rods, and the unplated portions of the piston rods have this finish ***at no extra cost on all Miller cylinders.*** (This finish not recommended for water service)



You may wish to route this entire page to the proper department in your company, by using this handy form. Additional copies on request. →

To (Dept.)_____

"On all our future cylinder requirements, please specify the above quality features."

Signed_____

Title_____

NOTE. On all Miller Hydraulic Piston Seals: Leather Cup Seals are *standard.* Piston Ring Seals are optional *at no extra cost,* and "Teflon" Cup Seals are available *at extra cost.*

Member of the National Fluid Power Association

SALES AND SERVICE FROM COAST TO COAST

CLEVELAND • YOUNGSTOWN • DAYTON • TOLEDO • CINCINNATI • COLUMBUS
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Miller

MILLER FLUID POWER DIVISION FLICK-REEDY CORP.

2002-06 N. Hawthorne Ave., Melrose Park, Ill.

AIR & HYDRAULIC CYLINDERS • BOOSTERS • ACCUMULATORS
COUNTERBALANCE CYLINDERS

Fairtex Combination Yarns

. . . made to your order by Branson

Strong, pliable, easy-to-work combination yarns by Branson are custom-made to your specifications.

Combinations of metallic, synthetic or natural yarns . . . elastic, supported metallics . . . are expertly manufactured in the Branson plant.

Highly skilled technicians, together with the most modern equipment and methods, produce combination yarns that are guaranteed to run smoothly on your machines.

For strong, pliable, easy-to-work Combination Yarns . . . tell us your requirements . . . let us work out the details with you.

Branson Company

1808 Liberty Life Bldg. • Charlotte, N.C.

Plant: Monroe, N. C.

CHICAGO
Napier & Harshman
3555 Peterson Ave.

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Robert Napier
51 E. 42nd St.

**Dupont's TM for polyester film.*

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Nearly every competitive advantage starts with the machine

The "READING" CK-A Circular Knitting Machine

The "READING" Tricot Machine

The "READING 100" Full Fashioned Knitting Machine

The "READING" Full Fashioned Outerwear Machine

The "READING" Automatic Expanding Examining Form

Textile Spring-Beard Needles

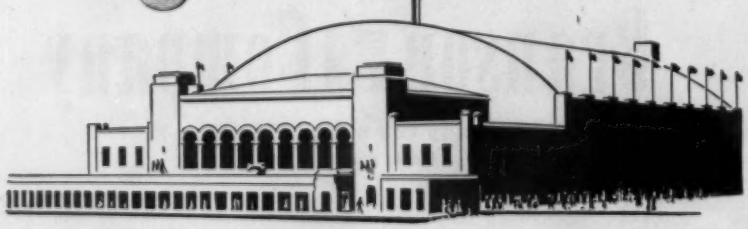
Arrow Latch Needles

Whether your visit is purely social or whether you want to discuss some of our new developments in knitting, you will be sure of a hearty welcome at the Textile Booth at the Knitting Arts Exhibition. We are right inside the main entrance, as usual.

See our new READING CK-A Machine for circular knitting of men's fancy patterned hosiery.

Before you go home from the Show, we hope you will plan to visit us at Reading where you can see all our machines operating under mill conditions.

TEXTILE MACHINE WORKS, READING, PENNA.



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An Old Evil

This editorial very likely is going to make some people angry. If so, we hope it makes them angry enough to help stop a pernicious practice that, by all reports, is steadily growing worse in the textile industry.

The other day a textile-supplies salesman opened the trunk of his car and showed us the collection of electric toasters, electric shavers, nylon stockings, pen-and-pencil sets, etc. that he takes around with him on his mill calls. These things of course have nothing to do with running a mill or with the product this man sells. They were "gifts" for the purchasing agents, supply clerks, engineers, and overseers with whom he deals in selling supplies to mills.

For several months we have heard complaints of this old evil growing worse. As this salesman put it, "It's dirtier than ever." And we've been told by several representatives that they have stopped calling on certain mills altogether because the demands for "gifts" by the men they have to do business with have become exhorbitant.

Many People in the Act

Unfortunately a greasy palm is not limited to a few men who buy mill supplies. We've heard of instances where favorable opinion on major expenditures was bought by "gifts," often kick-backs, to men supposedly part of mill management.

And yarn and cloth salesmen are no strangers to the greasy-palm deal. Perhaps the most notorious instance of all is the suits, fur coats, automobiles, Bermuda vacations, etc. that mill salesmen of automobile fabrics have to kick in to Detroit purchasing agents.

But the fact that the practice of graft is widespread and often reaches top levels in no way relieves its odium. It is still graft, and it is still wrong, and it is still an immoral act whether the "gift" demanded is a new automobile, a "Truman deep freeze," or a 29¢ pencil.

Where Is the Guilt?

Probably nobody knows when, how, or by whom many of these practices were started in mills. It is likely that most of the mill men who received most of these "gifts" never once asked for a gift. Nevertheless, they share the guilt, for obviously the gift wouldn't be rendered unless the giver hoped to influence purchasing.

It is likely, too, that most of the salesmen who hand out the gifts did not start the practice and feel unclean for taking part in it. All that we have talked to say, "My competitors do it; so I have to." But certainly they share the guilt, for every time they hand out a gift they help keep the practice going and every new receiver they favor is one more person pulled into the web.

Management Is Responsible

Regardless of who started the practice or who keeps it going, the ultimate responsibility for stopping it rests squarely on mill managements and the managements of the companies for whom the salesmen work.

General Motors, Ford, and Chrysler most certainly could put a stop to the graft that goes on in automotive fabrics. Mills and textile suppliers also most certainly can put a stop to the graft that is going on in mills.

A. M. Thomas

Knitting Arts Exhibition

BOOTHS 59 & 60

Stop in

for news on latest machine developments

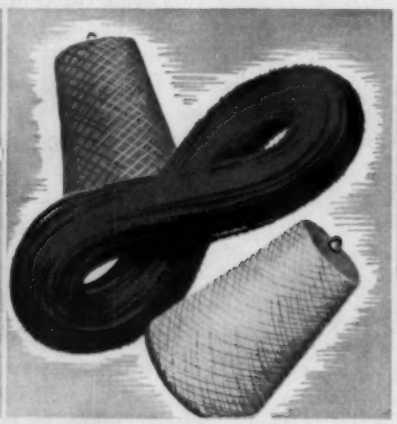
Turbo

Sweaters of fabulous Turbo High-Bulk depend on the Turbo Stapler and Fiber Setter. Turbo High-Bulk is now produced by 50 leading spinners.

Fur-like high pile fabrics, like this acrylic-fiber stole, are beautifully finished with the Turbo Electro-Finisher, Wet Applicator, and Shearer.

Pile fabrics, like this alpaca and wool coat lining, have an entirely new look and hand after processing with the Turbo Electro-Finisher.

Anklets, socks and Bermudas are "set for life" on Turbo Machines. Single, double, and triple forms can be used interchangeably.



Synthetic yarns and fabrics are steam-set quickly and thoroughly in Turbo Machines. Automatic controls assure uniform, high quality results every time.

Conventional and stretch stockings are preboarded/finish boarded in a Turbo. For complete hosiery dyeing and finishing, use the Turbo Dyotherm.

Be sure to stop at Booths 59-60 for the latest on High-Bulk, High-Pile Fabrics and the precision, automatic, profitable setting of all synthetic fibers — news of the industry — and good fellowship.

TURBO MACHINE COMPANY

LANSDALE **PENNSYLVANIA**

A Quarter Century of Manufacturing Precision Machines for the Textile Industry

← For more data, write this page number on Reader-Service card.

A Progress Report on Faculty Salaries:

UP . . . But Not Nearly Enough

THE CHART on this page provides a report of the progress being made in solving a problem of crucial importance to every American. The problem is that of seeing that college and university faculty members get decent salaries.

This new chapter, which brings the story forward two years—from 1954, when it was last dealt with in this series of editorials, through 1956—has a decidedly cheering element. For in the last two years faculty salaries have made real headway.

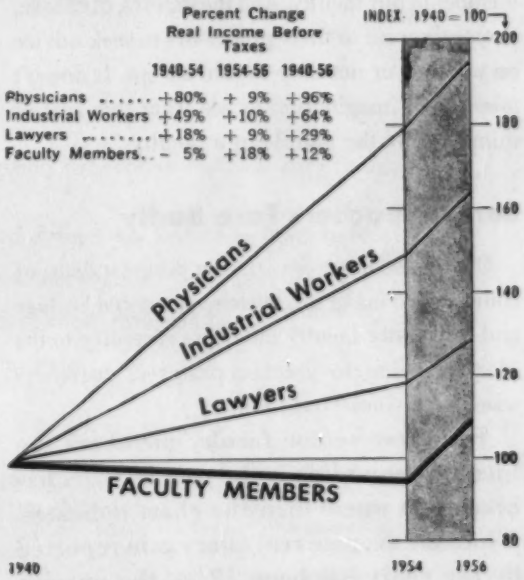
Two Years of Improvement

In 1954, in terms of what their salaries would buy, faculty members as a whole were actually worse off, by 5%, than they had been fourteen years earlier. As the chart shows, over the same period the real income of the average industrial worker had increased by almost half. And, in what it would buy, the income of the average physician, with professional training comparable to that of the average faculty member, had jumped by 80%.

In 1956, however, the average faculty salary would buy about 12% more of goods and services than it would in 1940. Relative to where they were two years before, faculty salaries showed a larger gain over the two years than those of any of the other groups whose salary progress is charted.

This movement of faculty salaries in the right direction has many contributing causes. The biggest single boost was given by the great Ford Foundation gift of half a billion dollars to our colleges, universities, and hospitals, almost half of which was ear-marked for faculty salary increases. Gifts from business firms have also

What is Happening to College Faculty Salaries



DATA: Council for Financial Aid to Education, U. S. Dept. of Commerce, U. S. Dept. of Labor, National Association of Education Research Dept., McGraw-Hill Dept. of Economics.

helped a lot. And so, in many cases, have stepped-up money-raising campaigns by alumni groups and cooperative regional and state groups of colleges.

Still a Long Way to Go

However, faculty salaries started their ascent from such a dismal depth that they still have a long, long way to go up before there is room for the comfortable conviction that they are fair, or even safe, from the standpoint of protecting the nation's vital interests. It still remains possible to find many shocking companion pieces for the following incident recently reported to a McGraw-Hill executive group, working on problems of financial aid to higher education, by the president of an illustrious small liberal arts college.

"The recruiting officer of one of our large industrial companies came to our campus a few weeks ago," the college president said, "and offered five of our seniors higher salaries to start working for that company when they are graduated next June than the salary received by any member of our faculty. And the seniors, of course, promptly went to their professors to seek advice on whether or not they should accept. It doesn't take much imagination to see what this sort of thing does to the morale of a faculty."

Senior Teachers Fare Badly

One of the more devastating things it does, of course, is to make the more experienced college and university faculty members receptive to the idea of going to greener pastures, currency-wise, in business and industry.

For these senior faculty members the financial pounding in the past 16 years has been even worse than the chart indicates. While the average real salary gain reported by the chart has been 12%, the average salary of a full professor still buys less than it did in 1940. This is because most of the salary increases have gone to beginning instructors, for whose services industry has been providing the sort of competition reported by the liberal arts college president.

And it creates this financial lackluster of posts as senior college faculty members right at the time their services are needed more than ever to handle the oncoming flood of college and university students. Between now and 1970 college and university enrollment is expected to double.

What is Needed Now

What is clearly needed is a continuation and intensification of the drive to increase their salaries to a point where college and university faculty members will be sharing somewhere near fully in the general prosperity of the nation. It could be counted good progress in this direction if over the next two years faculty salaries on the average were to go up another 12%, with most of the increase concentrated in the senior faculty ranks. And this can be made possible only through more outside contributions.

There is reason to be encouraged by the progress that has been made over the past two years in bailing college and university faculty members out of the terrible financial hole into which they were allowed to slide. But there is the most urgent occasion to keep at it and harder.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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Donald C. McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

Textile World

Volume 107, No. 4. April, 1957

HEALTH SERVICE nurses and technicians examine up to 40 executives or workers in an 8-hr. day. Well-defined routines include chest X-ray (left), and recording data for each patient on IBM file cards (right).

PREVENTIVE MEDICINE—
A New Aid To Industry

More and more industrial plants are starting preventive medical programs. Why? Because—

- 40.6% of 500 executives examined had defects not known to them before
- Working days lost on account of illness were cut 41% in one plant
- Accidents were reduced 75%; compensation rate, 64%

Here's what one health service is doing to help.

A FEW WEEKS ago a couple of long house trailers converted to a medical clinic pulled up outside the parking lot at American Enka Corp., Enka, N. C.

In a short while a big, genial doctor and a corps of nurses and medical technicians were giving 70 of the top men at Enka a professional going-over.

The Occupational Health Services of Dr. Logan T. Robertson, Asheville, N. C., was at work. The object: better health in industry.

Preventive Medicine Catches On

Dr. Robertson's OHS is an outgrowth of the increasing awareness of industrial management that preventive medicine is one of its prime concerns. Too many employees, both key men and workers, are, often without knowing it, half-well-half-sick.

With a little effort, any industrial plant can trace much low productivity, absenteeism, labor turnover, and accidents to these halfway people.

Companies practicing preventive

CONTINUED ON PAGE 216

HIGH DOFFER SPEED
Reduces Neps in Carding

• Recent research at Bibb Mfg. Co. produced 35 to 50% fewer neps in the card web as the result of raising doffer speeds. Stability of light web remains a problem, however.

By DR. WILLIAM C. SHEEHAN* and R. E. SHEEHAN, Research Dept., Bibb Mfg. Co.

A RECENT INVESTIGATION of the effect of various card speeds on nep formation conducted at the Research Dept., Bibb Mfg. Co., Macon, Ga., indicates that both doffer speed and lickerin speed independently affect neps. The cotton used in the study was a 1-in. Middling, which was spun into 16s yarn.

The nep count was reduced 35 to 50% by increasing the doffer speed from 9.1 to 21.5 rpm. at a production rate of 11 lbs. per hr. A reduction in nep-like imperfections of 15 to 20% was also realized by increasing the speed of the card lickerin from 421 to 769 rpm. The simultaneous effect of both factors was not studied.

The increased speeds did not affect the breaking strength of the yarn. It was also concluded that the amount of carding draft had no effect on neppiness of the web.

The research project was a further investigation of previous work on nep formation conducted by J. F. Bogdan at the School of Textiles, N. C. State College; by E. A. Bentley, Swift Mfg. Co.; and others.

Three Tests Were Made

Three principal experiments were conducted: Test 1, determination of the effect of doffer speed on neps; Test 2, determination of the effect of card draft on neps; and Test 3, determination of the effect of lickerin speed on neps. In all cases, sliver from each experiment was spun into yarn and yarn properties were measured.

Three laps were taken in succession from the same one-process picker and thoroughly blended and processed on a one-beater finisher picker. Two 50-lb. laps weighing 14.6 and 14.79 oz. per sq. yd. and three 20-lb. laps weighing 11.05, 15.18, and 21.32 oz. per sq. yd. were made. Fiber properties of the five picker laps are given in Table 1.

The card was thoroughly cleaned, and the doffer and cylinder were stripped prior to each test. The standard card settings used are given in Table 2, and processing data are in Table 3.

To determine what effect each doffer speed had on the neppiness of the card web (Test 1), the lap that weighed 14.6 oz. per sq. yd. was used.

Lap Is Divided Into Thirds

One-third of the lap was carded at 10.7 lbs. per hr. into a 49-grain sliver with a doffer speed of 9.09 rpm. (Test 1-A). The second third of the lap was carded at 10.7 lbs. per hr. into a 33-grain sliver with a doffer speed of 13.8 rpm. (Test 1-B). The remainder of the lap was carded at 12.6 lbs. per hr. into a 25-grain sliver with a doffer speed of 21.5 rpm. (Test 1-C).

Carding conditions could not be controlled so that a 10.7-lbs.-per-hr. production could be obtained in the third test. To vary the doffer speed and yet keep the production rate as nearly constant as possible, it was necessary to maintain a constant feed-roll speed.

Draft and Sliver Weight Vary

To maintain a constant production rate with this increased doffer speed, the weight of the sliver and the draft were varied. To separate the variable of draft from the variable of doffer speed, it was necessary to determine whether or not the actual carding draft influences neps. This operation was done by carding three laps of different weights into the same-grain sliver at a constant rate of production (Test 2).

To ascertain the effect of the high lickerin speed on card web neppiness (Test 3), the 14.79-oz. lap was carded at approximately 8 lbs. per hr. into a 41-grain sliver. The first half of the lap was carded with a lickerin speed of 421 rpm. (Test 3-A). The remainder of the lap was carded with a lickerin speed of 769 rpm. (Test 3-B).

In all three tests, card slivers produced were processed into approximately 41-grain drawing slivers, after which they were made into a 1.25-hk. roving. The roving, in turn, was spun into 16s yarn with a 4.75 TM., 20 ends up. Each test was kept separate throughout processing, and all processing was carried out on the same equipment.

Actual Draft Is Controlled

The actual draft of the card was controlled by changing the ratio between the surface speed of the doffer and the surface speed of the feed roll. This operation may be done either by varying the speed of the feed roll, as in Test 2, or by varying the speed of the doffer, as in Test 1. In practice, the first method is used.

The draft can also be controlled by varying the weight of the lap or by varying the weight of the card sliver. But to make such a change, either the speed of the feed roll or the speed of the doffer must be changed.

For example, if we are carding a 15-oz. lap into a 50-grain card sliver at 8 lbs. per hr. and we wish to change the weight of the lap to 11 oz. and yet maintain the same 50-grain sliver at 8-lbs.-per-hr. production, less draft will be required with the lighter lap. That is, the speed of the feed roll will be increased. Production remains constant, since the doffer speed and the weight of sliver remain the same.

On the other hand, if we wish to use the 15-oz. lap and

*Present address: E. I du Pont de Nemours & Co., Inc., Richmond, Va.

Table 1—Fiber Properties of Five Picker Laps

Lap No.	Length (Fibrograph)				Strength (Pressley-1000 psi.)		Fineness (Micronaire)	Maturity (%)	Total trash (%)
	Upper-half mean		Mean						
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation	Average*		
1	0.97	0.07	0.74	0.07	81.9	0.19	4.10	81.0	1.22
2	0.97	0.04	0.72	0.05	79.0	0.22	4.17	81.0	1.53
3	0.98	0.015	0.75	0.0015	78.1	0.16	4.20	81.0	1.45
4	0.97	0.016	0.74	0.0026	77.6	0.10	4.10	81.0	1.90
5	0.97	0.015	0.74	0.059	78.6	0.17	4.15	81.0	1.90

*Average of two determinations that check within 0.10 micrograms per inch.

FIBER PROPERTIES of the cotton used in the five test laps showed relatively little variation.

prepare a 30-grain sliver rather than the 50-grain sliver, it is necessary to decrease the speed of the feed roll. In this case, the weight of the sliver decreases and production decreases. Therefore, it is necessary to increase the speed of the doffer to maintain a constant production. This increased doffer speed does not alter the draft because the surface speeds of the doffer to the feed roll remain unchanged.

Laps Have Different Weights

In Test 2, carding drafts of 155, 186, and 295 were used to card three laps of different weights and produce card sliver at a constant production of 7 lbs. per hr. The draft was controlled by the speed of the feed roll. As shown in Table 3, these drafts had no influence on the nep-like imperfections resulting in the card web.

If the draft had been varied to the same degree by using a given-weight lap to produce different-weight card slivers, the same results should have been obtained, for in both cases the draft is controlled by the speed of the feed roll. When the draft is varied by the speed of the doffer, the draft change is between the cylinder and the doffer rather than between the feed roll and the cylinder.

Drafts of 144, 218, and 289 were obtained by carding the same lap into three different-weight slivers at a carding rate of approximately 11 lbs. per hr. The draft was controlled by the speed of the doffer. When the doffer speed was increased from 9.1 to 13.8 rpm., no significant difference in the nep counts of the card webs resulted. However, when the doffer speed was increased to 21.5 rpm., a nep reduction of approximately 50% was realized.

The nep count (41.4 per 100 mg.) of the card web at this high doffer speed and at 12.6-lbs.-per-hr. production was not significantly different from the nep count of the card web at conventional speeds and 6.64 lbs. per hr. In other words, production increased from 6.64 lbs. per hr. to 12.6 lbs. per hr. with the high doffer speed and without increasing the number of neps in the card web.

Neps Are Not Affected by Draft

The appreciable nep reduction that is possible with this high doffer speed is not believed to be a result of draft; for if this were the case, some difference would have been obtained at lower doffer speeds. Also, a difference—which did not exist—would have been expected when the draft was varied by the feed-roll speed over nearly the same range (155 to 295). The nep reduction obtained with this high doffer speed is believed to be a result of air currents.

There is the possibility, nevertheless, that this specific type of drafting is playing a part in the results obtained.

Table 2—Card Settings Used for the Tests

	Settings (thousandths of inch)
Feed plate to lickerin	12
Mote knives to lickerin	
Top	12
Bottom	10
Lickerin to cylinder	7
Back plate to cylinder	
Top	29
Bottom	34
Flats to cylinder	
Back, center, and front	12
Front plate to cylinder	
Top and bottom	34
Doffer to cylinder	7
Doffer comb to doffer	17
Lickerin screen to lickerin	
Front	¼ (in.)
Center	58
Back	34
Cylinder screen to cylinder	
Front	¼ (in.)
Center	58
Back	34
Workers to cylinder	12
Stripper to cylinder	12
Stripper to worker	
All three points	12
Wire on cylinder (No.)	80
Wire on doffer (No.)	100
Wire on flats (No.)	90

THESE SETTINGS were used for the cards, which were thoroughly cleaned and stripped before each test.

The fact that a light card sliver is produced very rapidly, in contrast to the conventional method of preparing a fairly heavy card sliver more slowly, probably plays some part in this observed nep reduction.

At a high doffer speed of 21.5 rpm., the web can be removed very effectively from the doffer by increasing the doffer comb from approximately 1,700 to 1,900 rpm. and setting the comb as close (12 gauge) and uniform as possible.

A carding difficulty, caused by the lightweight card sliver and not yet remedied, was encountered. There is a tendency for the web to fall down at the sides. Because of this drawback, the card sliver produced was not processed into yarn as were the others; but the dropping

Table 3—Processing Data For Three Carding Tests

Draft varied by . . .	Test 1 . . . Doffer speed			Test 2 . . . Lap weight			Test 3 . . . Feed-roll speed	
	A	B	C	A	B	C	A	B
Lap weight (oz. per sq. yd.)	14.60	14.60	14.60	11.05	15.18	21.32	14.79	14.79
Sliver weight (grains per yd.)	49.20	32.52	24.45	34.7	40.0	35.06	40.9	41.2
Standard deviation	3.81	2.96	.....	1.7	2.3	2.1	1.5	1.2
Draft (actual)	144	218	289	155	186	295	176	174
Production (lbs. per hr.)	10.7	10.7	12.6	6.64	7.65	6.71	7.84	8.39
Gears (teeth)								
Feed roll	120	120	120	120	120	120	120	120
Production	29	29	29	22	22	22	22	18
Draft	13	15	15	13	13	11	11	11
Doffer	56	43	43	45	45	43	45	45
Meshing	40	66	88	40	40	66	40	40
Pulleys (circum. in ins.)								
Doffer	56	56	56	56	56	56	56	56
Lickerin								
Drive	9¼	12 6/8	20½	9¼	9¼	9¼	9¼	7
Driven	20½	20½	20½	20½	20½	20½	20½	12 6/8
Speeds (rpm.)								
Doffer	9.09	13.8	21.5	8	8	8	8	8.5
Calender roll	70.0	105.0	162.0	60	61	61	62	64
Feed roll	1.096	1.09	1.3	0 97	0.81	0.48	0.83	0.857
Lickerin	418	416	423	436	432	415	421	769
Continuous stripper	1,774	1,774	1,847	1,848	1,849	1,830	1,840	1,849
Cylinder	165	160	161	166	165	166	165	165

DOFFER AND LICKERIN SPEEDS were increased, and draft was varied by doffer speed, lap weight, and feed-roll speed.

Table 4—Nep-Like Imperfections in the Card Web

	Test 1			Test 2			Test 3	
	A	B	C	A	B	C	A	B
Imperfections (per 100 milligrams)	86.14	80.93	41.44	41.7	43.7	51.2	50.8	36.1
Standard deviation	10.98	19.57	8.23	7.09	6.73	5.41	8.46	6.94
Confidence limits (95 %)	±8.45	±10.86	±4.09	±4.46	±4.24	±3.59	±4.88	±3.45
Number of samples tested	9	15	18	12	12	11	14	18
Total weight of samples (grams)	3.0815	6.5117	15.2277	7.5680	8.0650	9.1854	12.2356	19.9094

NEPS in the card web were reduced 50% when the doffer speed was increased to 21.5 rpm.

of the web did not interfere with its assessment.

A heavier card sliver could be produced that would cause the web to hold up very nicely, but this action would also increase production from about 12 to 25 lbs. per hr. The nep count of the web is known to increase functionally with increased production up to about 16 lbs. per hr. with the doffer running 16 rpm.; but what happens past this speed is not fully known.

When a 15-oz. lap was carded into a 41-grain card sliver at 8 lbs. per hr. and the lickerin speed increased from 421 to 769 rpm., neps decreased approximately 20%. It is not known what effect the card-production rate has on the effectiveness of this increased lickerin speed.

Table 5—Break Constants for 16s Yarn (4.75 TM)

Test	Twist (tpi.)	Skein Breaking strength* (lbs.)	Break constant	Appearance grade
1-A	19.1	122.15	1954	D
1-B	19.2	131.37	2102	D
2-A	19.1	127.56	2041	C+
2-B	19.2	123.88	1982	C+
2-C	19.1	120.31	1925	C+
3-A	19.1	126.25	2020	C+
3-B	18.9	128.56	2057	C+

*Breaking strength is adjusted to 16s yarn according to ASTM Standard D180-49T

SKEIN STRENGTH was not affected by draft, production rate, or increased lickerin speed. Appearance was lowered by excessive blending.

Nep Count Varies Functionally

It should now be evident why the high lickerin speed recommended by N. C. State and used by Mr. Bentley at Swift Mfg. Co. does not within itself fully account for the 40% obtainable increase in production without resulting in more neps.

By increasing production 65% (25.7 lbs. per hr. from 15.7 lbs. per hr.), Swift's doffer speed would be from 20 to 22 rpm. The lack of increase in neps is more the result of the high doffer speed than of the high lickerin speed. In other words, the nep count of the card web varies functionally, not directly proportionately, with an increase in production.

At production rates up to approximately 8 lbs. per hr., the nep count of the card web increases only slightly

CONTINUED ON PAGE 224

"Results Inconclusive," N.C. State Says

• As this research is similar to previous work conducted in the Department of Textile Research, School of Textiles, N. C. State College, TEXTILE WORLD asked the college for comments.

• Here's what the Research Department said—

It is so gratifying to note that a mill is willing to conduct the research effort discussed in this paper that we dislike in any way to appear not to encourage such research. It is only through the extension of applied processing research at the mill level that the many problems of cost, production, and quality that face the industry as a whole will be overcome.

It is also encouraging to note in the approach to this research that there were few, if any, preconceived ideas and that a careful study of previous work was conducted.

We cannot agree, however, that the data that resulted in these experiments completely support the conclusions. The conclusions themselves may or may not be correct. Although our previous work does not lead us to agree that doffer speeds affect neps to any great extent, we cannot deny that they may have some effect.

What Causes Neps

Neps are caused by manipulation of fibers; and certainly the carding action that takes place between the cylinder and doffer, in which fibers laying over several inches on the face of the cylinder are condensed into each inch of doffer surface, does not help the nep problem in any way.

Our principal criticism of the conclusions is that they are based on C- and D-grade yarns in which the defects are so numerous that it is impossible to determine their source and which make it difficult to be very conclusive about the degree of improvement obtained. Surely a better yarn than these grades deserved to be made from the cotton used.

It is also stated that neps were reduced in some experiments to 41.6 per 100 milligrams of card web from still higher levels. While this trend is encouraging, the level reached is still about three times what is considered a maximum acceptable level.

The Purpose of Research

It has never been difficult in any spinning process to get improvements in production, quality, or waste produced. But the point of research on such processes is to find ways to do so without adversely affecting any of these factors. Research that develops new theories based on production of C- and D-grade yarns or on card webs that are unstable produces results that are not only impractical but that undermine the theories themselves.

Perhaps the key to the inconclusive data lies in the final sentence of the report in which the authors describe the blending of stock as "excessive." Blending to such a degree would undoubtedly have caused a multitude of neps to be formed in the stock itself; and if this is the case, it is most dangerous to have conclusions on the results of further processing of the stock.

CONTINUED ON PAGE 224

"Three Conclusions Given," Dr. Sheehan Replies

• The author of the accompanying article, Dr. W. C. Sheehan, read the N. C. State comments before publication.

• Here's what he said—

Three conclusions are given in the article on high doffer speeds. Carding drafts, which were controlled by the speed of the feed roll, had no influence on the number of nep-like imperfections in the card web in carding a 1-in. Middling cotton at a constant rate of production. Reductions in nep-like imperfections were realized with this same cotton with a high speed of the doffer and with a high speed of the card lickerin at a production rate as nearly constant as possible.

No claims are made that these conclusions, which were based on the experiments amply discussed in the article, are a generality. Generalities cannot be adduced from a limited number of experiments. However, evaluations were made at the 95% confidence level, and real differences between mean values were statistically evaluated.

Neps Were in Card Web

The conclusions concerning neps were made on the card web, not on the yarn. The number of defects in the web were not so numerous that a 35 to 50% reduction could not be realized, as was the case.

Thank you for agreeing with my conclusions. As for the ultimate level of nep counts, do you really think that any two research centers, without prior consultation, can come within the same order of magnitude on nep counts of the same cotton?

There are no official nep standards as there are for yarn grades. ASTM standards define and illustrate neps and similar imperfections. But, can you count such imperfections by definitions? If so, try this one:

To the mill man, a nep is a small and tangled thing
About half the size of a jumping bean
It consists of lint and leaves and some few seeds,
Which magically combine to form a knot with ease
These little things so tiny and small
Look like pebbles in an ivory wall
They pass through the web in horrid fright
Getting smaller and smaller in their endless flight
But they appear in the yarn as safe as ever
Putting the mill man in a lather
Then comes the cloth all speckled with sinners
Causing the dyers to curse the spinners.

Practicality Not Claimed

No claim was made in this article for practicality. But please let us not exclude the possibility, however, that some ingenious reader might think of a way to utilize these conclusions.

There is a possibility that the cause of nep reduction, which some investigators have attributed solely to increased speeds of the card lickerin, may be due in part to the corresponding increase in doffer speed. This idea is offered in this article for the first time, and the data presented support such a possibility.

Excessive blending was necessary to assure equality of

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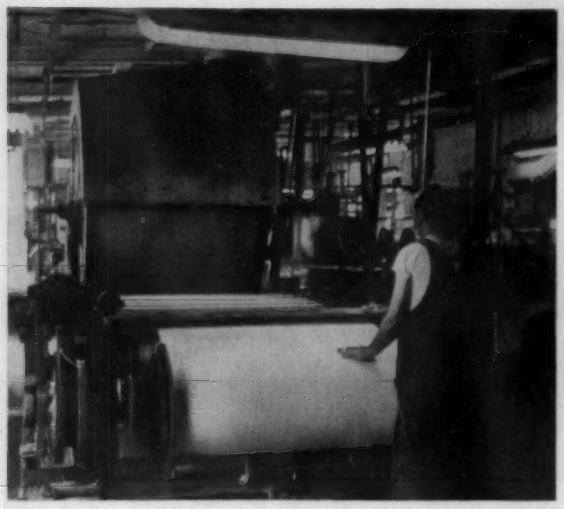
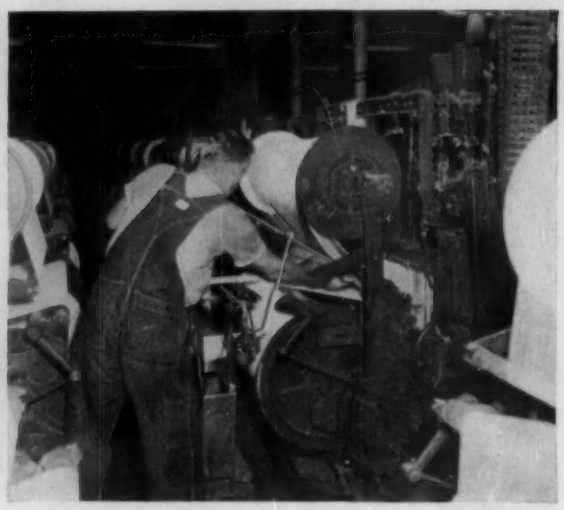


SLASHING is the key to good weaving at Lakeside Cotton Mills, Guntersville, Ala.



PATTERN is combed straight for tying by Machine Operator Charley Ward.

Project — Better Warps Result — Improved Weaving

• To obtain the maximum in weaving efficiency and first-quality cloth, Lakeside Cotton Mills, Guntersville, Ala., started in the slasher room. The results have upheld this mill's belief that good warps will make good cloth in quantity.

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

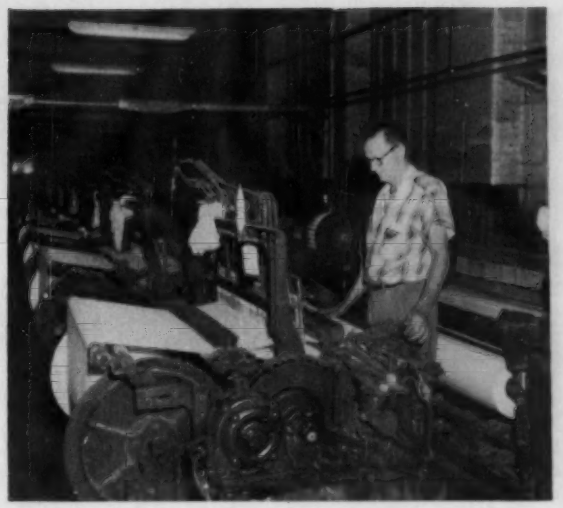
THE MANAGEMENT of Lakeside Cotton Mills, Guntersville, Ala., is aware of a basic principle of weaving that some mill men never learn; that is, that the quality and quantity of cloth produced from the looms is in transcending proportion to the quality of the sized warps. It is generally supposed that a defective warp presents an isolated problem, that the cloth woven from the warp may be of second quality, and that the loom can be expected to have more downtime while weaving the defective warp into cloth.

Actually, one defective warp on a weaver's job can decrease the efficiency of the job as much as 5% and increase the seconds produced on the job in proportion because the weaver will spend so much time trying to keep the defective warp straight and run it out that he neglects his other looms. So a vicious circle is started: the defective warp demands more than its share of attention; the neglected warps develop faults such as tangles, ends out, and break-outs. The weaver's troubles pyramid and his efficiency tumbles.

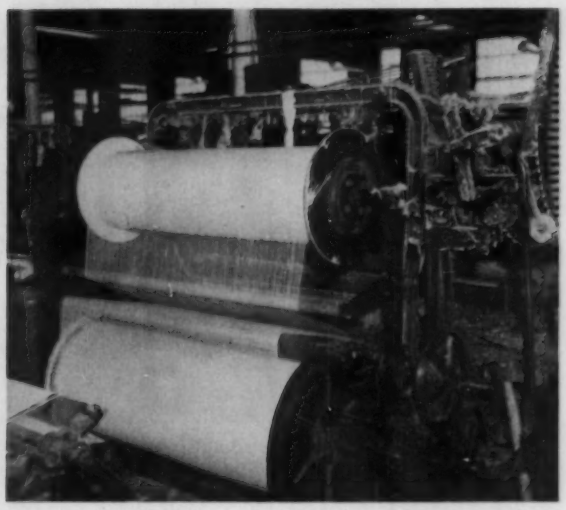
Bad Warps Affect Morale

But that's not all. Having no time to patrol the aisles and inspect, the weaver does not detect other cloth defects such as thin places, jerk-backs, kinky filling, wavy cloth, and overshots. These weaving defects mount, and the weaver is accused of trying to pass the buck if he blames them on the bad warps. But indirectly, defective warps can cause all kinds of weaving troubles and it doesn't take a lot of these warps to do it. One or two bad-running warps on each weaver's job will upset the apple cart.

Then there is the problem of employee morale. No one can do his best with his nose to the grindstone, and bad-running warps create such a condition. The harassed weaver, in



CLOTH on looms is inspected frequently by all employees concerned.



TWO BEAMS are used on the dobby looms that are weaving fancy fabrics.

an effort to keep his looms running, becomes careless and short-tempered. He starts looms in a hurry and often causes damage to them, thus incurring the wrath of his loomfixer. He causes break-outs and makes looms eject full bobbins of filling, which does not exactly create good will on the part of the smash hand and batteryhand.

Defective Beams Are Reworked

Being fully aware of the harmful effects of defective and bad-running warps, Lakeside makes every effort to have each warp that comes from its slashers as nearly perfect as possible. The yarn from defective section beams is rewound on separate bobbins and then rebeamed.

Lakeside has two double-cylinder slashers. The front cylinders are 7-ft. dia. and the back cylinders are 5-ft. dia. The number one slasher has an 11-beam creel and the number two slasher has a 9-beam creel. The beam journals are equipped with ball bearings, and the beam heads are 30-in. dia.

Each slasher has a single size box with 600-lb. squeeze rolls. The front roll is blanket-covered, and the back roll is covered with synthetic rubber.

The size is prepared in two stainless-steel cooking kettles and held in a storage kettle. A viscometer is used, and size temperature is held at 210° F. The slashers have friction drives and a speed of 50 yds. per min. Yarn stretch not exceeding 1½% is maintained. In addition to having good yarn, properly sized, the slasher operators also constantly check the warps and run lease strings as often as needed to keep a straight lease on each loom beam.

Three Types of Cloth Woven

Fabrics woven are 80-square sheeting, broadcloth, and fancy cotton fabrics for the clothing trade. The looms are 40- and 44-in. Draper E-model, and 204 of them are equipped with dobbies. The 40-in. looms have electric warp stop motions, and the 44-in. looms are equipped with mechanical sliding bar warp stop motions. All the looms are motor driven at a speed of 160 ppm.

The dobbies have been converted from single-index type to double-index, double-lift heads. The pattern chains are run over a rack-and-roller attachment above the looms that keeps them from dangling to the floor. The cam looms have modified Dwight spring tops. To reduce strain, friction, and the crowding of warp ends, each shed is drawn in two harnesses; that is, a normal two-harness weave is drawn in four harnesses, operating in pairs.

The looms have high-roll worm take-up motions with the take-up rolls covered with steel fillet. Roper let-off motions are used. Some of the dobby weaves require two warp beams, one mounted over the other. The looms on these two-beam weaves have a Roper let-off motion for the bottom beam, and the top beam is regulated by a spring-friction let-off band.

Goal Is 98% Loom Efficiency

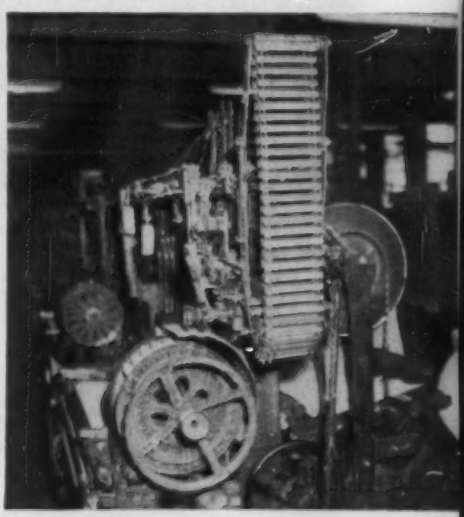
All the looms are equipped with midget filling feelers and Stafford thread cutters. They have single side filling forks. The warp-yarn beams have 24-in. heads, and the filling quills are 8 ins. long.

All the warps are tied at the loom with a 36-in. portable tying-in machine. The patterns are carefully combed and straightened before tying, and a straight lease is obtained.

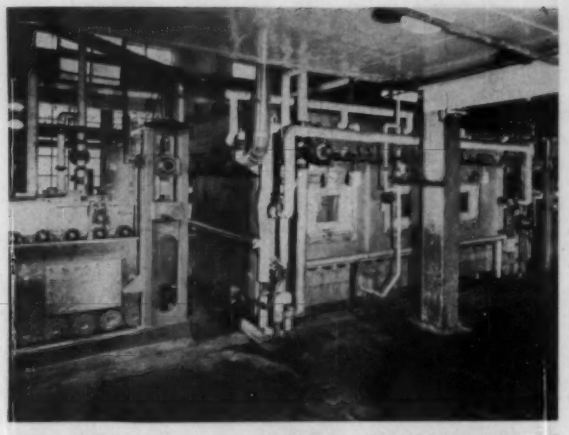
Jobloads vary according to the kind of loom (cam or dobby) and the type of fabric woven. A weaver on broadcloth tends 68 looms, and a batteryhand on this style has 85 looms.

The weave room has central-station air-changing units and atomizer-type humidifiers.

With its close attention to warp preparation and machine maintenance, Lakeside is averaging more than 96% loom efficiency. But the mill management is confident that its goal of 98% efficiency will be attained or exceeded before the end of the current year.

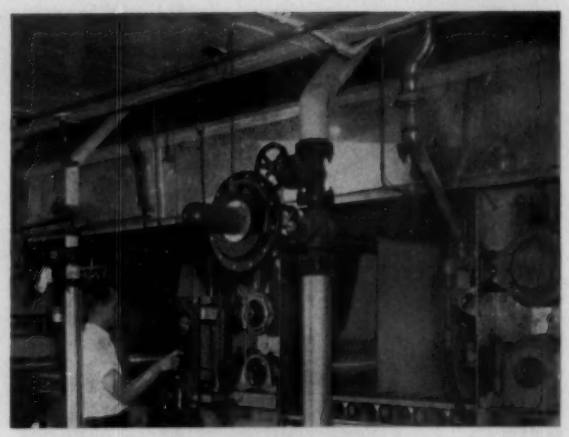


RACK prevents pattern chain from dangling to floor and possibly causing damage.



FIRST SECTION of the range includes the desizing unit and steamer. Brown-sour saturator is at the far right.

Courtesy The Foxboro Co.



BROWN-SOUR WASHERS, here being checked by William Bennett, are equipped to provide automatic temperature control and constant tension.

CONTINUOUS BLEACHING
Goes King-Size at Dominion

The largest bleaching range on the continent has recently been put in production at Dominion Textiles Ltd., Magog, Que. Features include:

- **Open-width handling**
- **An intermediate brown-sour step**
- **A mercerizer installed between the souring and scouring units**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

THE NEW BLEACHING RANGE at Dominion Textile's Magog, Que., plant is a $1,000,000 investment that is paying off in better work and lower operating costs.

Open-width bleaching ranges are not uncommon; but in this installation a brown-sour stage is included and a full-scale, modern mercerizing range has been set in between the souring and scouring stages.

The bleaching range was designed to handle twills and drills from 1.80 to 2.75 yds. per lb. These fabrics cannot be kier-boiled and bleached in the rope; and before Dominion's range was operating, goods in this category were prepared by batch-processing on jigs. The time element, uniformity of results, and high cost of this kind of processing pointed up the need for an adequate continuous-processing method.

So Dominion's management decided to lay out a cloth-preparation range that would accomplish every necessary step to get cloth ready for dyeing or printing. The mercerizer was set into the range so that when goods require mercerizing, there is no break in the continuity of flow. The mercerizer is bypassed when necessary.

How the Range Is Set Up

The bleaching range is composed of six principle units—a singer, a rapid-desizing unit, a brown-sour saturator and retention chamber, the mercerizer, a scouring stage, and the bleaching stage. With the necessary between-stage and final washers, the range requires 480 ft. of floor space. In operation, it contains about 6 mi. of cloth.

Every unit of equipment is made of stainless steel, where that metal is most suitable; and antifriction bearings are used throughout.

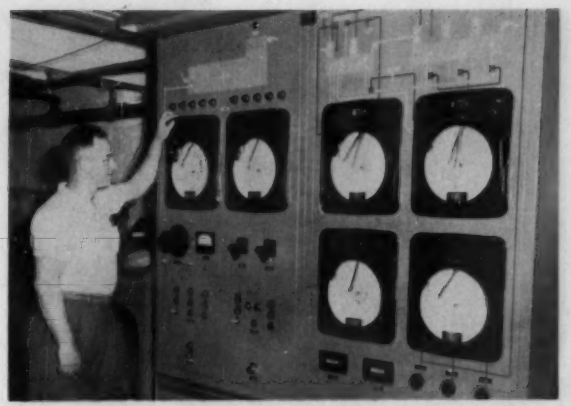
Fully automatic control of temperatures and pad pressures is provided by Foxboro recording controllers. Each major unit has its own control panel, and each panel is in turn linked with the master panel. Power is supplied from a.c.-d.c. converters.

How the Range Operates

Lots are made up in the gray room, two stories above the bleaching range, and pulled into a Cook-P&N singe-desize unit, where heat generated by a propane-gas open burner removes lint and fuzz.

The quench box of the singer is supplied with a mix containing 1% Rhozyme LA, 1% common salt, and 0.1% Triton kept automatically at 160° F. A thorough saturation in this mixture is followed by a retention period of 1 min. on a traveling belt enclosed in a steam-heated chamber.

The goods then pass into Cook-P&N open-width



MASTER CONTROL PANEL monitors the whole range. Each principal unit also has its own panel that controls local conditions. W. E. McLaughlin, overseer of bleaching, checks what's happening in the first stage.

washers where water at 140° F. washes out the converted sizing materials, and an air-set pad removes excess wash water.

The next stage is brown-souring, where the goods are saturated in a 0.25% solution of sulfuric acid and loaded into a Proctor & Schwartz three-stage conveyor of enough capacity to allow a 30-min. layover. No heat is used in this stage.

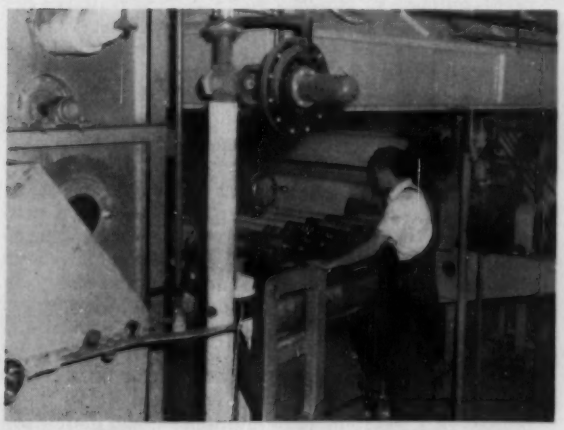
The brown-souring step is relatively new in continuous-bleaching ranges, but Dominion included it in the new system because many impurities found in cotton are dissolved by a treatment in cold dilute sulfuric acid. Getting rid of as much foreign matter as possible at this point cuts the load on the scouring and bleaching stages.

After the retention period, the goods are washed at 140° F. through open-width washers, which remove materials solubilized by the acid.

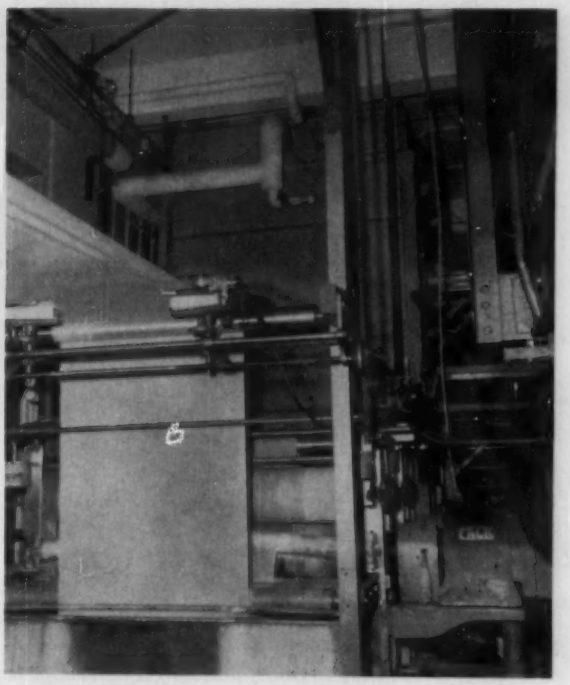
Mercerizing Comes Next

At this point, if the order calls for mercerizing, the goods are padded in caustic soda at 45° Tw. and squeezed out in a heavy air-set pad and pass on to a Morrison 90-ft. tenter.

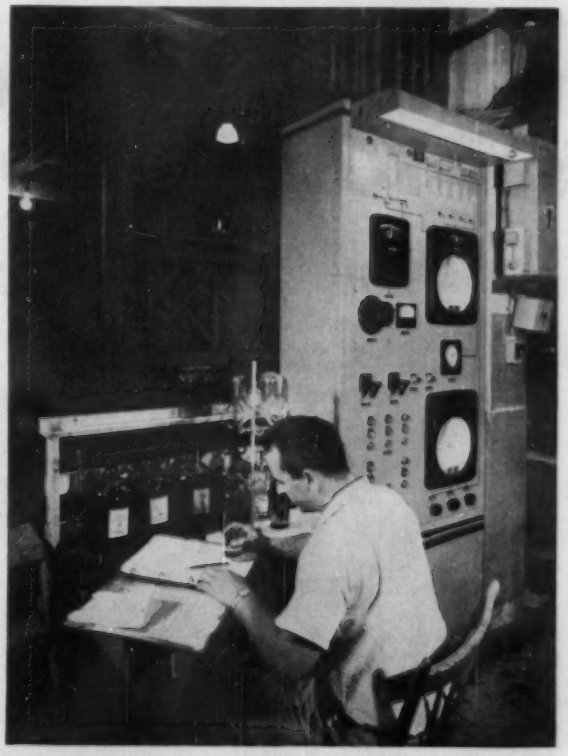
CONTINUED ON PAGE 226



BLEACHED GOODS enter the final washing stage at this point. A five-compartment washer completes the bleaching process.

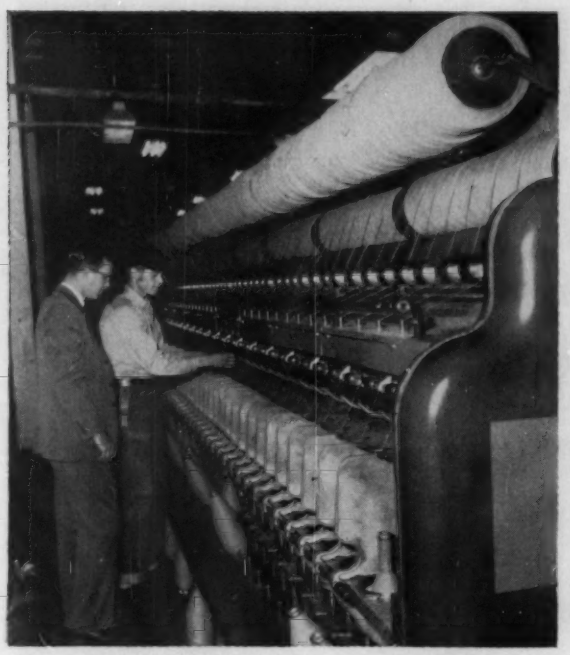


A FOUR-PASS SATURATOR at the entering end of the bleaching stage soaks the goods in peroxide and removes excess liquor in a heavy pad.

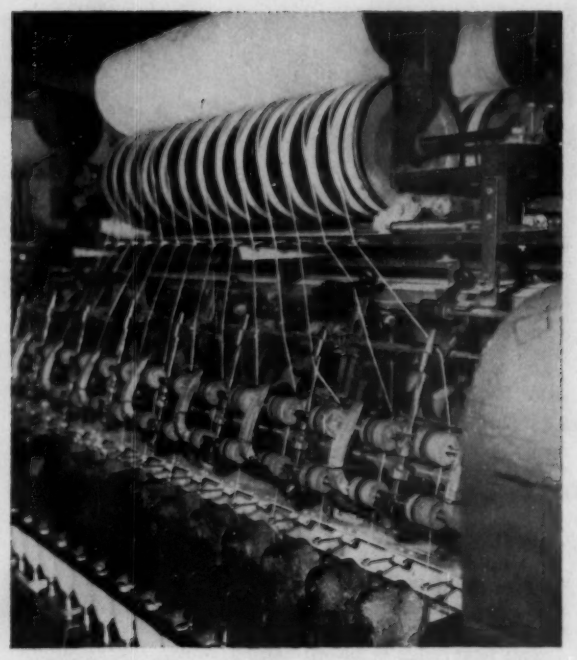


PEROXIDE SOLUTION is checked regularly at this titrating table. The control panel monitors speed, liquor levels, and temperatures at this point.

Courtesy The Foxboro Co.



NEW WOOLEN SPINNING FRAMES produce 1¼-lb. bobbins in 1 hr., 45 mins. One man runs three sides.



WORSTED SPINNING FRAMES were changed over to woolen frames by equipping them with drums and modifying the drafting.

At Boaz—

Woolen and Cotton Machinery Spin SOLUTION-DYED RAYON

- Boaz Mills, Inc., Boaz, Ala., has added woolen carding and spinning machinery in anticipation of greater demand for woolen yarn for tufted carpets.
- The present market for solution-dyed-rayon yarn is good, however, and Boaz is spinning yarn from this fiber on both its woolen and cotton systems. Here's how it's done—

Boaz Mills, Inc., Boaz, Ala., is one of the few, if not the only, mill in the country making solution-dyed-rayon yarns on both woolen and cotton machinery.

The only apparent difference in the yarns produced on the two systems is that the product of the woolen machinery seems to have a little more body because of fewer drafting operations.

Boaz, traditionally a cotton mill, had no trouble starting up the woolen machinery on rayon. One factor that probably made the job easier is that the management was already familiar with the running characteristics of the fiber from experience in processing it on the cotton system.

Here's how Boaz spins 200,000 lbs. of 0.95s to 2.40s a week from 3-in., 15-den. staple on both the woolen and cotton systems.

How the Woolen System Operates

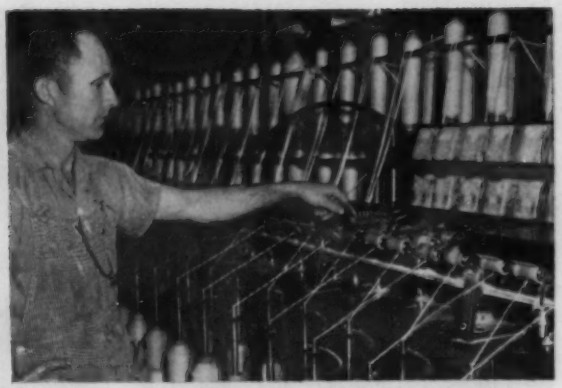
After the solution-dyed rayon is carded on Davis & Furber woolen cards, the jack spools are placed on new D&F woolen spinning frames and on converted Whitin FW3 worsted frames. Each 40-in. jack spool holds about 10 lbs. of 245-grain (50 yds.) roving.

The D&F frames have 112 spindles, 5-in. Herr rings, 6½-in. gauge, 1¾-in. front rolls, automatic yardage knock-off, and Pneumafil.

To spin 1.25-run yarn (approximately 2.40s on the cotton system) on these frames, front-roll speed is 150 rpm., spindle speed 2,800 rpm., twist multiplier 3, and draft 1.25.

A 1- to 1¼-lb. bobbin is made in about 1 hr., 45 mins. One man runs three sides, and no doffers are used.

F2 SPINNING FRAMES used for the cotton system are conventional except for modified drafting.



MODIFIED ROVING FRAMES are used to spin 1s to 1.50s rayon yarn on the cotton system.

The FW3 worsted frames have 200 spindles each, 3-in. rings, 10-in. bobbins, and 3-roll slip drafting. The 1¼-in.-dia. front rolls run 125 rpm.; spindle speed is 2,300 rpm. and draft is 1.25.

The 0.15-lb. bobbins are doffed every 20 to 25 mins. Doffers, who handle 350 spindles each, are used on these frames. Spinners run 300 spindles each.

How the Cotton System Operates

Both rayon and solution-dyed rayon are processed on the cotton system. The stock is carded on normal cotton-mill machinery with modified drafting systems that control the long-staple fibers.

Spinning is done on six Whitin F2 frames, four Whitin twisters converted into spinning frames, and 16 10x5 roving frames changed over to spinning.

The F2 frames are conventional except for modified drafting. Aprons were removed from the Casablancas system, and a floating middle roll was installed. The frames have 216 spindles each, 4-in. gauge, 3-in. rings, and 10-in. bobbins. One girl operates three sides.

To spin a 2.40s yarn from 0.45-hk. roving, front-roll speed is 175 rpm., spindle speed 4,000 rpm., traveler No. 40, twist multiplier 3.25 (to 4.25), and draft 5.5. Although a floating middle roll is used, the draft is considered to be in one zone because of its positive action.

The twisters converted to spinning have 3½-in. rings, 4½-in. gauge, 1¼-in.-dia. front rolls, and 208 spindles. The conversion was done by mill personnel. Old roving-frame roll stands, traverse motions, cap bars, and nebs were used. Creels came from old spinning frames; new rolls were added.

The converted twisters can spin the same numbers that are made on the F2 frames, but ordinarily coarser yarns are produced. Production of 2s is about 2,700 lbs. per frame in 24 hrs., where the front-roll speed is 150 to 160 rpm. One girl runs three sides.

The 16 roving frames that were changed over to spinning frames are used to produce 1s to 1.50s yarn. These frames originally had both conventional drafting and Inter-Draft. One middle top roll was removed from the conventional-draft system and one from the Inter-Draft system to produce a two-zone system in both types of frames.

The converted frames have a front-roll speed of 80 rpm. for spinning 1.25s and a spindle speed of 900 rpm. Total draft is 5.5, with most of it in the front zone.

Two Systems Converge at Winding

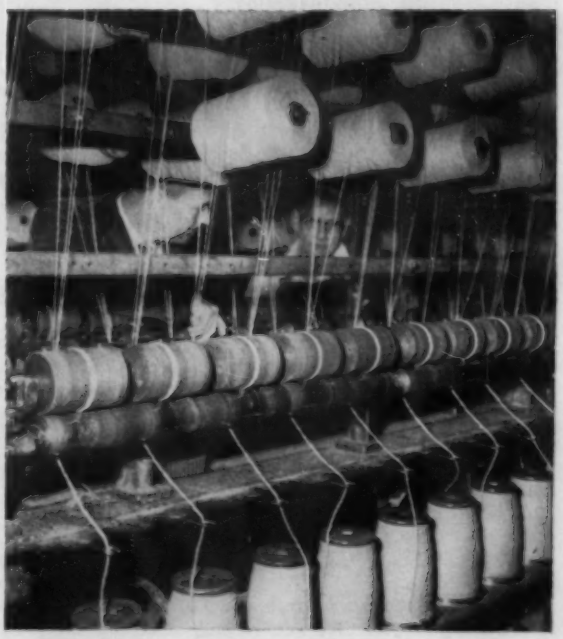
Both the woolen and cotton systems use the same winders and twisters.

Four Foster 102 winders produce 8-in.-dia. tubes that weigh 4 lbs. each. The mill has developed a special slubbing attachment for these machines that is claimed to remove a very high percentage of slubs.

Fourteen Saco-Lowell twisters with 4½-in. rings make two-, three-, and four-ply yarns. Special magazine creels are used to hold spinning bobbins for two-ply yarns.

Tweed and novelty yarns are color-blended at the twisters. Special combinations, such as viscose and acetate and nylon, are twisted to order for cross dyeing. And for those customers who prefer moisture and emulsion in their yarn, a system has been worked out for applying the solution at the twister instead of at the winder.

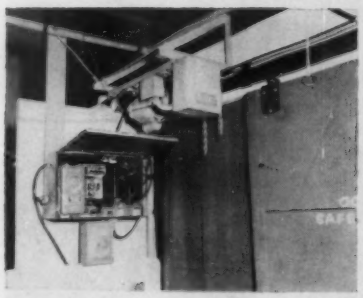
Boaz plans to continue to spin long-staple rayon on both the cotton and woolen systems as long as demand is good. The mill can switch to wool overnight, however, and is experimenting with blends of other synthetic fibers and twist-set nylon.



PLY YARNS are color-blended at the twisters, where emulsion can be added if required.

Textile Supplies from the ***PLANT-MAINTENANCE*** *Show—*

• The recent Eighth Annual National Plant-Maintenance Show held in Cleveland was the largest show to date. Over 400 companies demonstrated thousands of products. This report shows the most important items for textile mills.



Door Controls

Electric operators for overhead, sliding, vertical, rolling, and swinging doors were shown by Barber-Colman Co., Rockford, Ill. All conventional types of switches are available with the doors: wall, pull-cord, and lock switches.

With a radio control, truck operators can open and close doors and gates without stopping by pressing a button on the moving vehicle. **(A-1)**

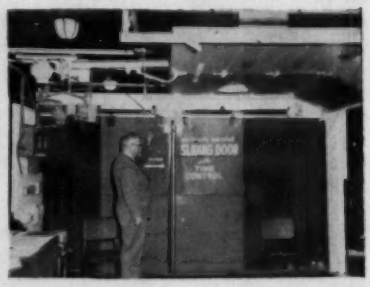
Textile Grease

A grease for high-temperature drives of tenter frames was shown by Shell Oil Co., New York, N. Y. The grease is said to stand up for six weeks at an operating temperature of 340°F. on a six-day-per-week, 24-hr.-per-day schedule.

When the grease is used in textile-finishing ager-unit operation, bearings have to be lubricated only every two weeks. Steam and condensate do not affect the grease in the outboard support bearings. **(A-2)**

Fork-Truck Power Steering

Power steering for fork trucks was shown by Towmotor Corp., Cleveland, Ohio. Results of the control are said to be greater maneuverability, less driver fatigue, faster handling, better control, and greater safety. **(A-3)**



Weatherproof Door

A vermin-, fire-, and decay-resistant door was shown by Barber-Colman Co., Rockford, Ill.

The door has a honeycomb core with adhesive-bonded hardboard on both sides. The top, bottom, and end closures are redwood. All bonding agents are oil- and moisture-resistant.

The door is said to be strong and light. It stands up under weathering and has good insulating properties. **(A-4)**

Pipe-Threading Machine

A pipe-threading machine for difficult jobs was shown by Oster Mfg. Co., Cleveland, Ohio. The machine threads bent pipe or rods and short nipples, rods, studs, and bolts with a revolving die head.

An open vise makes it possible to handle the work without stopping the motor. A standard range of pipes from ⅛ to 2 ins. and bolts from ¼ to 2 ins. can be threaded. (A-5)

Air-Line Filter

A filter for compressed-air lines and air-operated equipment was shown by Snap-on Tools Corp., Kenosha, Wis. The filter removes foreign substances such as water and oil from the air, and it does not have to be drained. It prevents rust and corrosion.

Little maintenance of the filter is required; the internal assembly is washed free of scale and insoluble gums every few months.

It can be attached to ¼-, ⅜-, and ½-in. lines. (A-6)

Fluorescent Tube

A fluorescent lamp with twice the light output of present tubes of equal length was shown by General Electric Co., Cleveland, Ohio.

The lamp, Power-Groove, has a series of lengthwise dents or grooves along one side. The grooves greatly increase the permissible wattage input and light output of a given length of lamp. (A-7)

Inspector's Swing Chair

A bracket swing-chair unit for inspectors was shown by Adjusto Equipment Co., Toledo, Ohio. It has all of the adjusting features of ordinary chairs, can be raised or lowered 8 ins., and holds a 600-lb. load. The chair seats and backs are upholstered for comfort. (A-8)

Steam Cleaner

A steam-vapor cleaning gun that one man can operate all day was shown by Malsbary Mfg. Co., Oakland, Calif. The tool delivers 180 gals. of hot solution each hour at 60 to 100 psi. (A-9)

Cog Belts

Cog belts with increased coefficient of friction were shown by Dayton Rubber Co., Dayton, Ohio. The sides of the belts are die-cut so that the exposed surfaces will contact the pulley.

The belts pull heavy loads with little tension, reduce slippage, and run 3 to 10 times longer before adjustments are necessary. (A-10)

Fire-Door Control

An electric fire-door control was demonstrated by Clark Door Co., Newark, N. J. The door closes automatically when flash fires occur.

A link that breaks at 160°F. is supplied with the control. The door can be operated manually without disturbing the control.

The control is available for sliding doors with inclined or level tracks and will control single or double sliding. (A-11)

Lighting Fixture

A semidirect industrial fluorescent-lighting fixture shown by Sylvania Electric Products, Inc., Salem, Mass., offers several advantages: (1) there are only two major parts, the channel and the reflector shield; (2) up to 25% more light is available because light is directed upward through slots to eliminate contrasts; (3) a lighting efficiency of 89% is reached; (4) only one man can maintain both the 4- and 8-ft. units; and (5) cleaning is reduced since the slots in the reflector create an upward draft that carries away dust and heat. (A-12)

Fork Lift Truck

A liquid-petroleum-powered fork lift truck of 3,000-lb. capacity and 15-in. load center was shown by Allis-Chalmers Mfg. Co., Buda Div., Milwaukee, Wis. The turning radius is 70 ins. (A-13)

Plastic Casters

An all-plastic nylon-reinforced industrial wheel was shown by The Fairbanks Co., New York, N. Y. The wheels have thread guards to keep out waste lint and thread.

The smooth wheel surface protects floors against marking. The wheels are not affected by oils and greases, have high resistance to most chemicals, and are sparkproof. Sizes are 3 through 12 ins. Alloy-steel roller bearings can be lubricated with pressure. (A-14)

For more information, circle the A-number on Reader-Service post card.

Soap-Dispenser Cabinet

A powdered-soap dispenser made in a cabinet that holds paper towels was exhibited by United States Borax & Chemical Corp., New York, N. Y.

The dispenser is a square model patterned after the company's round industrial dispenser. It is hidden in the towel cabinet with only the valve end in sight. A single key locks both the cabinet and the dispenser. **(A-15)**

Power-Drive Lubrication

A centralized lubrication system for textile machines such as twister frames was shown by Lincoln Engineering Co., St. Louis, Mo. Injectors serve 200 twister rings per frame with oil supplied automatically at preset time intervals.

Pumping units are available in both low- and high-pressure applications and can be controlled mechanically, electrically, or manually. The system is for new equipment or for existing equipment. **(A-16)**

Motor Rewinding

A motor-rewinding service was demonstrated by Westinghouse Electric Corp., Pittsburgh, Pa. The company will apply its Coilife rewinding to old motors and give the same guarantee as for new equipment.

Generally, the winding is applied to semiopen-slot construction but is also suitable for form-wound windings. Either type of winding can be furnished in two classes: Class A for maximum operating temperature of 105° C. and Class B for temperature of 130° C. **(A-17)**

Grooved-Wheel Casters

Grooved-wheel casters to operate on inexpensive self-cleaning angle-iron tracks were shown by The Bassick Co., Bridgeport, Conn.

Benefits include better utilization of floor space, protection of floors, and economical handling of heavy loads. **(A-18)**

Condenser for Lamps

A ceramic condenser for fluorescent lamps was featured by Sylvania Electric Products, Inc., Salem, Mass. The condenser solves several lamp problems because it cannot expand or contract under temperature changes and parts won't melt or disintegrate. **(A-19)**

Liquid-Petroleum Truck

A lift truck powered by liquid-petroleum gas was demonstrated by Baker-Raulang Co., Cleveland, Ohio. Features of the truck are said to be (1) no obnoxious odors, (2) less maintenance, (3) no dilution of oil, (4) more power and smoother performance, (5) longer engine life, (6) maximum safety, and (7) lower refueling and handling costs. **(A-20)**

Metal-Covered Cable

Interlocked flexible armor cable was exhibited by Anaconda Wire & Cable Co., New York, N. Y. It is installed without conduit.

The cable can be laid quickly, indoors or out, in easily installed racks. It is applied smoothly around corners, columns, and other obstructions in long, uninterrupted runs. And the metal-tape armor affords high protection against damage. **(A-21)**

Roll-Away Workbenches

A workbench that carries a vise and tools directly to the work location was exhibited by Overbeke-Kain Co., Bedford, Ohio.

The truck is fabricated of $\frac{1}{8}$- and $\frac{3}{16}$-in. steel plate. It will support 2,000 lbs. on the $\frac{3}{16}$-in. top, and one man can move the workbench easily.

Heavy-duty roller-bearing casters are furnished with optional tires of hard rubber or plastic. An extension cord and plug-in receptacles are available for electrical tools. **(A-22)**

Rubber-Fibre Wheel

A nonmarking rubber-fibre wheel was exhibited by The Bassick Co., Bridgeport, Conn. The wheel is 3 ins. in diameter and has roller bearings. **(A-23)**

Rotary Joints

Rotary pressure joints for multicylinder slashers and finishing machines were shown on a mock-up running in the booth of The Johnson Corp., Three Rivers, Mich.

A syphon elbow for slasher cylinders, drying cans on finishing machines, and other textile uses was also shown. The syphon can be removed from the rotary joint without stopping the slasher. Then the syphon can be cleaned and replaced with the slasher or machine still running. **(A-24)**

Fluorescent Lamp

A Rapid-start fluorescent lamp that produces more than double the light output of its prior models was shown by Sylvania Electric Products, Inc., Salem, Mass.

Features of the lamp are a pressure-control center to produce cool spots at each end of the lamp, and double-contact base. (A-25)

Chemical-Resistant Paint

A quick-drying, chemical-resistant paint was shown by Barreled Sunlight Paint Co., Providence, R. I. It protects metal, wood, brick, concrete, and other masonry from the action of alkalis and acids. The paint may be applied by brush or spray and dries in 2 to 3 hrs. to a hard, tough, medium-gloss finish. (A-26)

Saw Guard

A circular-table-saw guard that combines safety with full-work visibility was demonstrated by Brett-Guard Co., Englewood, N. J. The guard exerts a downward pressure on the work. (A-27)

Portable Oil Burner

A portable oil burner for baking electric motors and generators; drying switchgear in relays; drying underground and exposed wiring; baking heavy transformers; drying manufacturing areas for cleaning, repairing, and refinishing; and drying materials for construction was shown by Silent Glow Oil Burner Corp., Hartford, Conn. (A-28)

Flaring Tool

A flaring tool for nine sizes of soft-copper, aluminum, or brass tubing was exhibited by Imperial Brass Mfg. Co., Chicago, Ill. (A-29)

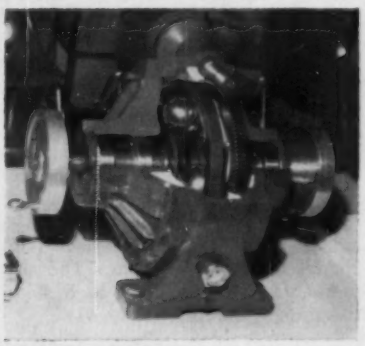
Liquid Soap

Liquid industrial soaps furnished in 55-gal. drums were shown by Gerson-Stewart Corp., Cleveland, Ohio. Alkalinity is said to be 0.02%. (A-30)

Large Floor Machine

A 31-in. floor machine said to do the same amount of work as four 16-in. machines was demonstrated by Multi-Clean Products, Inc., St. Paul, Minn. It has a brushing area of 855 sq. ins. compared with 210 sq. ins. for one 16-in. machine.

The machine is quiet and easy to operate. It scrubs, cleans with steel wool, and polishes. (A-31)



Variable-Speed Drive

A speed-variator drive that responds to manual or automatic control was shown by Cleveland Worm & Gear Co., Cleveland, Ohio. A compact unit with input and output shafts provides speed ratios of nine to one.

The shafts have room for V-belt sheaves on each end. But the over-all size provides space-saving advantages. (A-32)

Copper-Tubing Hangers

Adjustable wrought-iron hangers for copper tubing were exhibited by Grinnell Co., Inc., Providence, R. I. The hangers take tubing from ½ to 4 ins. in diameter and are recommended for loads from 75 to 475 lbs. (A-33)

Pipe Markers

Pipes identified with markers shown by W. H. Brady Co., Milwaukee, Wis., are said to speed pipe tracing and reduce machine downtime. Standard markings, such as "Sprinkler Water," in several colors are available. (A-34)

Tinted Plastic Windows

Plastic windows in a variety of transparent tints were shown by Rohm & Haas Co., Philadelphia, Pa. The windows are weather-resistant and do not break from twisting, shock, or thermal expansion.

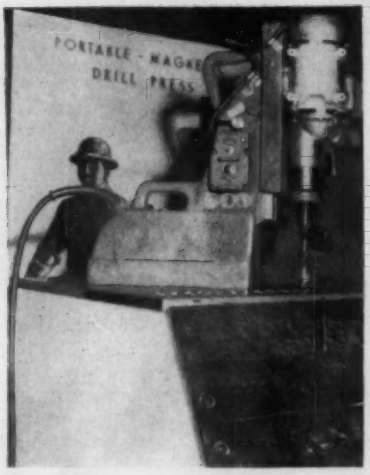
The tint reduces glare and is available in smoky gray, blue, and green. Thickness is ⅛ and $\frac{3}{16}$ in. (A-35)

Portable Vacuum Cleaner

A portable vacuum cleaner to be fastened over an employee's back was demonstrated by M. D. Stetson Co., Boston, Mass. The cleaner weighs only 10 lbs. and is arranged so that an employee can move freely to operate it for several hours without tiring.

A throw-away paper bag will hold cement, sand, dirt, and dust. Several extension tools and tubes are available with the cleaner. (A-36)

For more information, circle the A-number on Reader-Service post card.



Self-Holding Drill Press

A drill press for production work or for use as a portable tool in a plant was demonstrated by Portomag, Inc., Ferndale, Mich. An electromagnetic base holds the drill press in position even on vertical surfaces.

A power feed makes it possible for an operator to run the drill point down to the center-punch mark, turn on an automatic feed, and let the drill bore a hole to any predetermined depth.

The tool will drill holes up to 1¼ ins. in diameter and tap holes up to 1 in. in diameter. Operator fatigue is eliminated because the power feed does all the work. (A-37)

Industrial Glazing

Plastic windows said to reduce normal window breakage 90% were shown by International Molded Plastics, Inc., Cleveland, Ohio. The panes are made in seven standard sizes, clear or tinted. (A-38)

Electrical Recorder

An electrical recorder that charts a continuous record of an electrical quantity against time was shown by General Electric Co., Schenectady, N. Y. A throw-away ink well in the inking system assures a clear, clean record and eliminates open ink wells.

Six advantages of the recorder are: (1) servicing time and cost are cut, (2) it has a 60-day spring clock, (3) up to 28 different chart speeds are available, (4) it's durably built for long life, (5) records are easy to read, and (6) maintenance is simplified because all work can be done by loosening four screws. (A-39)

General-Surface Cleaner

A general-surface cleaner for shower rooms, rest rooms, lockers, desks, walls, floors, and painted equipment was exhibited by Oakite Products, Inc., New York, N. Y. The cleaner is easy to use, easy on the hands, free-rinsing, and safe. (A-40)

Machine Leveling Mount

A self-contained leveling mount for machinery was shown by Felters Co., Boston, Mass. It combines the features of the company's felt mounting pads with a rugged, easy-to-use device for precise leveling of machines.

One unit is required for each machine leg. Loads up to 7,500 lbs. per unit may be mounted.

A machine is leveled by rotating the square top of a leveling screw and then securing a lock nut. The machine stays level, and up to 85% of vibration is eliminated. (A-41)

Grease-Sealed Casters

Triple-grease-sealed casters with neoprene-vulcanized retainers were demonstrated by Faultless Caster Corp., Evansville, Ind. The seal gives positive protection for swivel bearings and wheel bearings where steam, dirt, chemicals, and water are encountered. (A-42)

Steam Traps

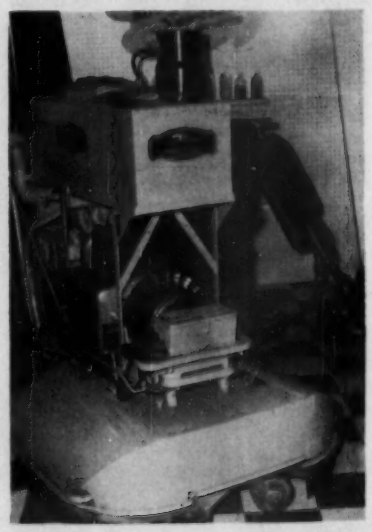
A line of steam traps in several sizes was shown by Yarnall-Waring Co., Philadelphia, Pa. The traps are designed especially for slashers and dyeing operations. (A-43)

Machinery Mountings

Shock and vibration mountings for machinery were shown by Robinson Aviation, Inc., Teterboro, N. J. Several types of mountings, including self-leveling mounts, were shown. (A-44)

Pipe Threader

A new jamproof pipe threader was shown by Ridge Tool Co., Elyria, Ohio. The threader will handle pipe from 2½ to 4 ins. It has loop handles that make it easy to carry and put on the pipe. The threader has five high-speed steel dies that are held in place by a spring and ball. It is designed for both hand and power operation. (A-45)



Gasoline Floor Machine

A floor-cleaning machine shown by Finnell System, Inc., Elkhart, Ind., is said to increase the output per manhour. The machine, Model 418G, mechanizes scrubbing by applying cleanser, scrubbing, and picking up all in one operation.

No power line is needed because the machine is powered by gasoline. It can also be powered by liquid-petroleum gas.

In addition to wet scrubbing, the machine dry-scrubs and polishes, cleans with steel wool, and buffs. (A-46)

For more information, circle the A-number on Reader-Service post card.

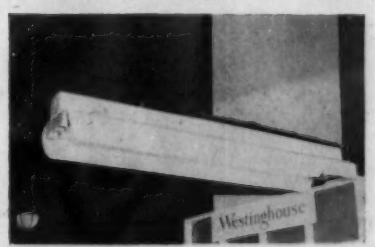
Hot-Water Cleaning Tool

A portable line-pressure injector that converts a plant's hot-water system to a spray cleaning tool was exhibited by Oakite Products, Inc., New York, N. Y. The tool weighs 25 lbs. and holds 15 lbs. of powdered detergent.

The tool has no motors, coils, needle valves, or pumps. It's easily carried about and can be connected to any hot-water faucet. (A-47)

Mercury Lamp

A 1,000-w. semireflector mercury lamp that gives up to 15% more light was exhibited by General Electric Co., Cleveland, Ohio. For new installations, about 10% fewer lamps and fixtures are needed for a given lighting level. For old installations, the lamp is interchangeable in present equipment. (A-48)



Lighting Fixture

A fluorescent light reflector was shown by Westinghouse Electric Corp., Pittsburgh, Pa. It is slotted at the top to let lint and dust escape.

The reflector is porcelain-enameled and has brass lamp holders and end plates. All exposed hardware is stainless steel. Two lengths of units are made: 4 and 8 ft. (A-49)

Electrical Instruments

A complete line of improved instruments to test electrical equipment was exhibited by James G. Biddle Co., Philadelphia, Pa. The instruments include meggers, motor-rotation tester, cable-fault location equipment, and several others. (A-50)

Pipe Jacket

A corrugated aluminum jacket for covering insulated pipes was shown by Aljon Mfg. Co., Roselle, N. J. The covering is permanent, easy to install, and easy to dust. It never needs painting. (A-51)

Plastic-Center Belt

A flat leather belt reinforced with a center of high-strength plastic was running on a drive in the booth of J. E. Rhoads & Sons, Wilmington, Del.

Advantages are said to be: (1) it operates efficiently for the full life of the belt without tension adjustment, (2) dressing is rarely applied, (3) narrower belts and very short center distances between pulleys are possible, (4) shock is absorbed as in a spring, (5) oil and moisture have little effect on performance, (6) belt speeds of 10,000 ft. per min. are possible, and (7) the belt is not affected by temperature ranges from −20°F. to 160°F. (A-52)

Electrical Cables

Electrical cables in several types of construction were shown by Anaconda Wire & Cable Co., New York, N. Y. One cable has butyl-rubber insulation for high moisture resistance and ageing qualities, another has varnished-cambric insulation for indoor applications in dry areas, and a third has asbestos-varnished-cambric insulation for indoor applications where high ambient temperatures prevail. (A-53)

Renewable-Seat Valve

A renewable-seat-ring gate valve was shown by The Fairbanks Co., New York, N. Y. Valve sizes start at ½ in. and extend through 2 ins. The seat rings are replaced without removing the valve body from the line. (A-54)

Fire-Extinguishing System

An electrically operated automatic carbon-dioxide system for extinguishing fires was exhibited by Walter Kidde & Co., Inc., Belleville, N. J. Under normal conditions, the system operates at 140°F.; but higher ratings are available. (A-55)

Concrete Fastener

A self-drilling concrete fastener made from casehardened steel was demonstrated by Phillips Drill Co., Michigan City, Ind. The fastener has eight sharp cutting teeth at one end and an internal thread at the other.

The fastener can be inserted into concrete with the company's electric-impact hammer or with a manual driver. Common sizes are ¼ and ⅜ in. (A-56)

Power Sweeper

A large-capacity power sweeper that dumps hydraulically was introduced by G. H. Tennant Co., Minneapolis, Minn.

The sweeper has a 42-in. main brush and a 12-in. side brush and cleans a 54-in. path. The sweeping capacity is 110,000 sq. ft. per hr. in open areas. At a touch of a lever by the operator, loads up to 800 lbs. are dumped hydraulically in about 8 secs.

The machine is 66½ ins. wide and 84 ins. long, but it can turn in a radius of 64 ins. A foot pedal operates a Maxitorq clutch; the operator pushes the pedal down with his toe to go forward and presses back with his heel to back up. (A-57)

For more information, circle the A-number on Reader-Service post card.

Lubrication Pump

An improved mechanically driven pump for centralized lubrication was shown by Trabon Engineering Co., Cleveland, Ohio.

In textiles, cotton cards are lubricated with the system. Both sleeve and antifriction bearings are lubricated in 20 to 30 secs.

The system is said to improve cleanliness, eliminate contamination of card clothing, reduce power requirements, and reduce replacement-parts cost. (A-58)

Fluorescent Luminaire

A direct fluorescent luminaire with features designed to give 10% upward light was shown by The Miller Co., Meriden, Conn. The reflector is porcelain-enameled, provides 14° crosswise shielding, and has embossed shoulder ribs for extra strength. (A-59)

Portable Power Tool

A portable power drive shown by Toledo Pipe Threading Machine Co., Toledo, Ohio, has several uses, among them turning die stocks, opening and closing valves, operating tapping machines, operating earth augers, and replacing hand cranking on almost any job.

The drive has a reversible ½-hp. motor and a lightweight housing frame. Adapters may be fitted quickly for many different jobs. (A-60)

Chemical-Resistant Paint

Catalyzed-epoxy maintenance enamels for chemical atmospheres were shown by E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. The enamels are available on a customer trial-and-approval basis.

Four types of enamel are available in gray and black. They are for both interior and exterior surfaces. (A-61)

Industrial Cleaner

A detergent-action safety solvent designed to clean electrical equipment at operating positions was shown by Turco Products, Inc., Los Angeles, Calif. The compound is nonconductive; evaporates to complete dryness without leaving residue; requires no rinsing; and is safe for all metals, paints, and varnishes. (A-62)

Automatic Lubricator

Proper mixture of air and oil is assured with a knob that regulates the air flow in a 3-gal. automatic lubricator demonstrated by Alemite Div., Stewart-Warner Corp., Chicago, Ill.

Features of the automatic lubrication system are: (1) it serves up to 500 bearing inches; (2) the large lubricant supply provides continuous lubrication for 500 bearing inches for 48 hrs.; (3) coverage is efficient in a small, compact installation or over a distance of 480 ft.; and (4) automatic controls regulate air pressure, oil and air delivery, check-system operation, and oil level. (A-63)

Low-Cost Steel Buildings

Low-cost steel buildings for storage and shop areas were shown by Dresser-Ideco Co., Columbus, Ohio. The buildings are available in a wide range of roof styles for column-free floor areas and unobstructed overhead space. (A-64)

Steel Carts

A line of low-priced carriers for shops was shown by Standard Pressed Steel Co., Jenkintown, Pa. Other equipment shown included benches, stools and chairs, shelving, and cabinets. (A-65)

Aluminum Caster

A large aluminum-bodied caster completely sealed to hold grease in the bearing and to keep out moisture and lint was shown by The Bassick Co., Bridgeport, Conn. (A-66)

Screwdriver Kit

A set of Phillips screwdrivers for self-tapping hardened screws was demonstrated by Snap-on Tools Corp., Kenosha, Wis. The hardened screwdriver blades do not wear in driving self-tapping screws. They are sold in blade lengths of 1 to 6 ins. and in blade diameters of $\frac{1}{16}$ to $\frac{3}{8}$ in. (A-67)

Stud-Setting Tool

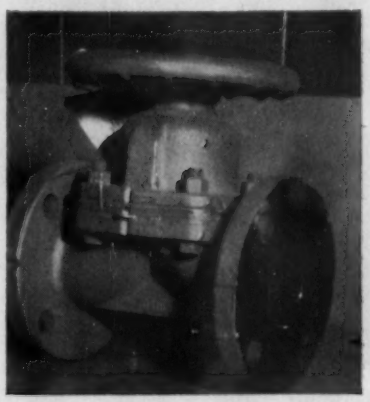
A hand-driven tool that drives steel studs into wood or masonry was exhibited by Ramset Fasteners, Inc., Olin Mathieson Chemical Corp., Cleveland, Ohio. The tool drives studs of $\frac{1}{8}$ to $\frac{7}{16}$ in. in diameter. (A-68)

Casters

Casters designed for equipment loads of 75 lbs. to 7½ tons were shown by Faultless Caster Corp., Evansville, Ind. The grease-sealed caster is effective where dirt, brine, water, chemicals, or temperature conditions affect the operation of standard casters. (A-69)

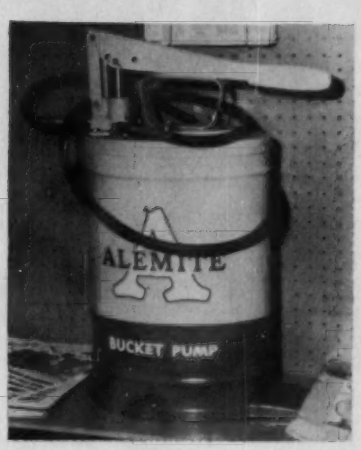
Portable Electric Hammer

A 1⅛-in. portable electric hammer was used to drill holes in concrete in the booth of Black & Decker Mfg. Co., Towson, Md. Phillips expansion heads and chucks were used with the tool. (A-70)



Glass-Lined Valve

A glass-lined valve for chemical installations was shown by Grinnell Co., Inc., Providence, R. I. The valve features low-cost maintenance, since only the diaphragm is normally subject to wear and it can be replaced by removing four bolts while the valve is still in operating position. (A-71)



Lubricant Pump

A 35-lb.-capacity bucket pump for oil or grease with up to 5,000 psi. developed was shown by Alemite Div., Stewart-Warner Corp., Chicago, Ill. The pump is made in seven models with a different coupler for each model.

The lever has three positions for three-way adjustable stroke. Delivery per 10 strokes of the lever is 2.1 oz. for heavy winter lubricant or 5.9 oz. for light summer lubricant. (A-72)

Plastic Pipe

A plastic pipe that resists corrosion and most chemicals was shown by Eastern Plastic Products Co., Inc., New York, N. Y. It can be sawed, threaded, welded, cemented, machined, and formed with conventional equipment. Its weight is only one-half that of aluminum and one-sixth that of steel. Tensile strength is 5,500 to 7,000 psi. (A-73)

Sewer Cleaning Machine

A sewer and drain machine capable of clearing roots from pipe 85 ft. away from the trap was demonstrated by Kollmann Mfg. Co., Erie, Pa. (A-74)

Protective Coating

A protective coating produced from coal tar to be used in a wide variety of industrial applications, including storage tanks, ovens, and materials-handling equipment, was exhibited by Pittsburgh Coke & Chemical Co., Pittsburgh, Pa. The material will not shatter or loosen at temperatures as low as −30° F. and will not soften at temperatures as high as 400° F. (A-75)

Electric-Wire Tool

A tool that fastens lugs to wire and keys them with a color band in one operation was shown by Thomas & Betts Co., Inc., Elizabeth, N. J. Dies for several sizes of lugs are included with the tool. (A-76)

Roofing-Repair Material

Roofs in bad condition can be repaired at reasonable cost with a tough, elastic, rotproof, reinforced coating developed by Philip Carey Mfg. Co., Lockland, Ohio. With the system, old roofs can be recoated without major repairs. (A-77)

Visible-Record File

A mechanized visible-record file and desk that has space for 4,020 8x5-in. record cards was demonstrated by Remington Rand, Div. of Sperry Rand Corp., New York, N. Y. (A-78)

Fork Trucks

Two models of lift trucks were shown by Towmotor Corp., Cleveland, Ohio: (1) a 4,800-lb.-capacity truck with a 24-in. load center and 120-in. lift, and (2) a 2,000-lb.-capacity truck with a 24-in. load center and 108-in. lift. (A-79)

Electric-Conduit Plugs

Polyethylene plugs for electrical conduits were shown by Thomas & Betts Co., Inc., Elizabeth, N. J. The reusable plugs cap threaded and threadless bushings and connectors to keep out water and dirt. (A-80)

Rust Preventive

A rust preventive for lubrication systems was exhibited by Gulf Oil Corp., Gulf Refining Co., Pittsburgh, Pa. It was developed especially to protect the circulating systems of machines during seasonal shutdowns. (A-81)

Floor Machines

Floor-maintenance machines driven by electricity, gasoline, or propane gas were shown by Clarke Sanding Machine Co., Muskegon, Mich. The machines meter a solution, scrub, rinse, pick up, and dry in a single pass. Two sizes are available, 26- or 30-in. brush spreads. (A-82)

Plastic Window

A lightweight, translucent, Fiberglas-reinforced plastic panel for fire-retardant building construction was shown by Resolite Corp., Zelienople, Pa. The shatterproof light-diffusing plastic panel is available from leading lumber dealers throughout the U.S. (A-83)

Folding Curtains

A folding curtain to partition textile production areas for isolating lint and humidity was shown by Bemis Bro. Bag Co., Minneapolis, Minn. The curtain protects different fibers in production from lint, other fibers, and excessive humidity.

It is made from jute impregnated and heavily coated with a fire-resistant plastic. The curtain is suspended on tracks and rollers.

Since the curtain is flame-resistant, it is also used to cut off areas where welding or spark-producing machine work is being done. (A-84)

Electric-Wire Markers

Aluminum-foil markers for electrical systems were shown by W. H. Brady Co., Milwaukee, Wis. The markers can be stuck to wires and controls to check faults. (A-85)

Stud-Driving Tool

A stud driver with interchangeable barrels for standard and heavy-duty jobs was exhibited by Remington Arms Co., Inc., Bridgeport, Conn. With the tool, two different jobs can be done, such as fastening a 2x2-in. timber to a concrete slab and mounting a steel plate to an I-beam support. (A-86)

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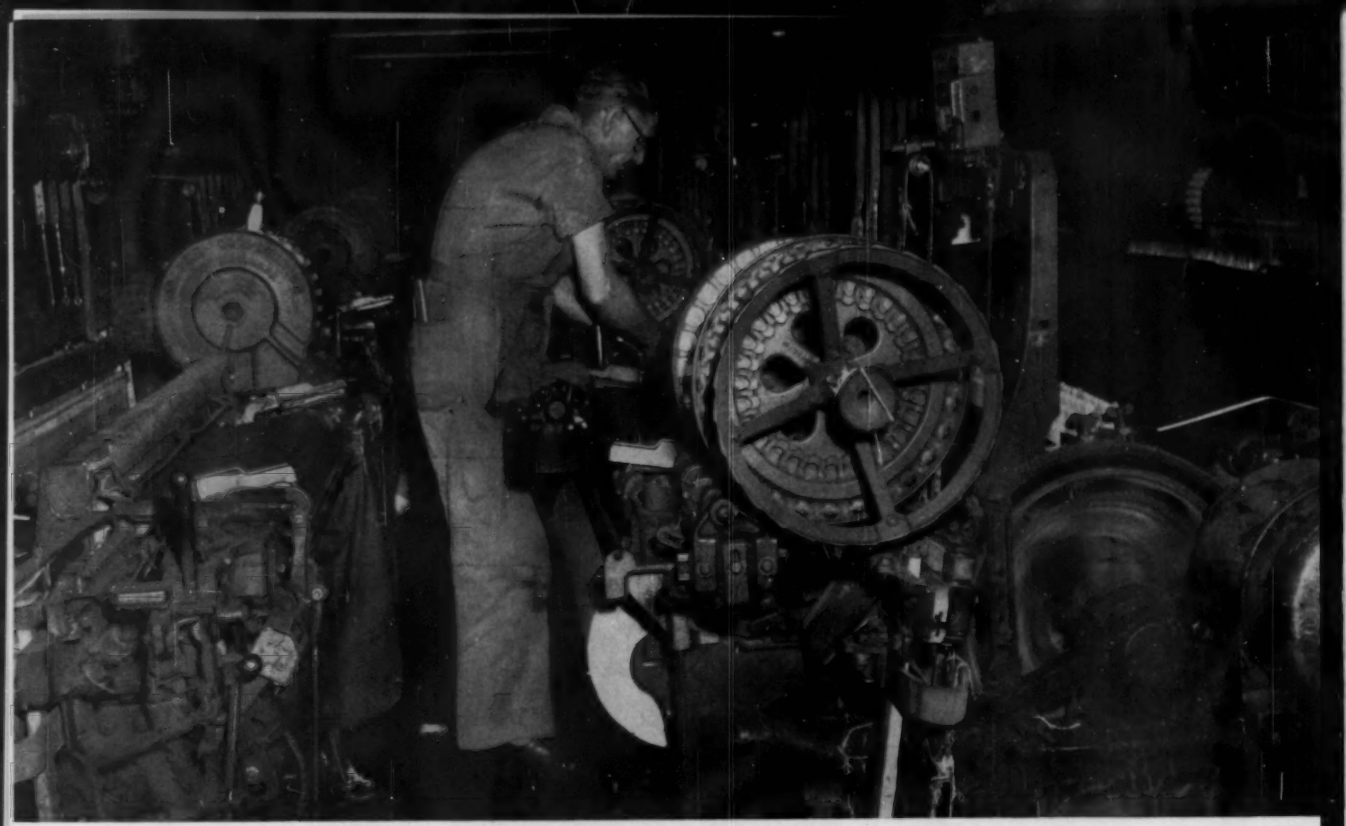
For more information, circle the A-number on Reader-Service post card.



BOXES must be correctly aligned to prevent excessive wear of leather.

Mill Tries and Likes Molded-Plastic SHUTTLES

A large mill weaving a variety of fabrics on E and X-2 model looms is using molded-plastic shuttles for replacements in all its looms. It has found that these shuttles—

- **Last four or five times longer than dogwood shuttles**
- **Require less care and maintenance**
- **Increase loom efficiency and reduce costs**

By WILMER C. WESTBROOK, Assistant Editor, TEXTILE WORLD

AFTER MORE THAN A YEAR of testing and experimenting, a large Southern mill has adopted the molded-plastic shuttle for all its looms. The mill reports excellent results from the shuttle but admits that certain obstacles were encountered. Most of the troubles have been overcome.

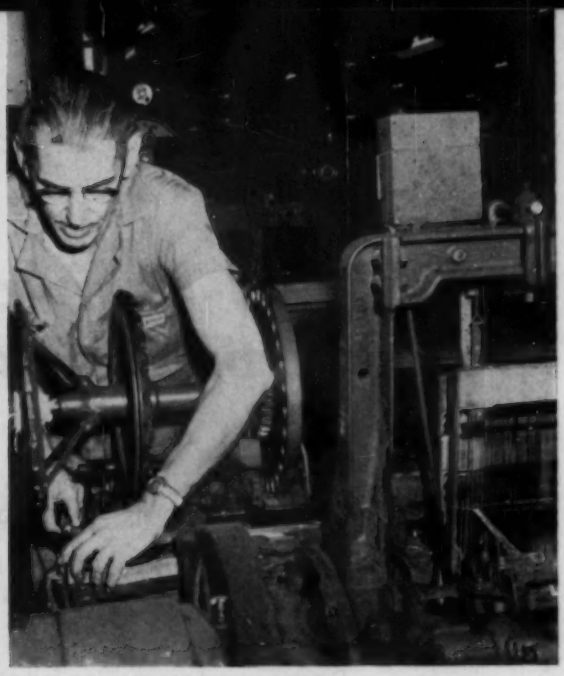
One of the first troubles to develop was that of certain warp ends being mysteriously cut. It was found that the plastic shuttle, being heavier and harder than the dogwood shuttle, was nicking the ends against screw heads in the race board. All screws that were flush with the top of the race board were countersunk to eliminate the trouble. Also, all sharp edges of the race boards and lay ends were sanded smooth.

Bristles wouldn't stay in the shuttles, although dipping the ends of the bristles and the peg in glue before inserting in the shuttle helped. Then the loomfixers started using nylon loops instead of pig bristles. Pegging the nylon loops with shoe pegs dipped in liquid glue held them securely.

Leather Wore Out Fast

Then serious trouble developed that almost caused the mill to quit using the molded shuttles. Box and binder leather wore out so fast that the loomfixers were kept busy putting in new leather. However, a check-up revealed the fact that one section was using six times as many box plates and binders as another. Further investigation revealed the reason: the loomfixers using the fewest boxes

LOOMFIXER checks filling-changing mechanism, a frequent cause of damaged shuttles.



PICKERS should be as nearly parallel, front and back, as possible for maximum shuttle life.

and binders were aligning the back boxes when they installed new shuttles.

When all the reeds were squared and the boxes aligned, it was found that the leather did not wear any faster with the molded shuttle than it did with the regular dogwood shuttle. A close setting of the front box plates also helped reduce wear.

No changes were made in the method of paralleling pickers or setting the harnesses. No difference has been noted in the service life of pickers and checkstraps since the molded shuttles were installed.

The molded-plastic shuttles have a tendency to stick in the boxes when wet, but they do not have the dogwood shuttle's fault of becoming gummy when the humidity is too heavy. Lint, gum, and starches will not adhere to the plastic shuttle.

Shuttles Dressed on Sander

There has been no problem of shuttles sticking in the boxes on Monday following the week-end shutdown. The shuttles do not swell or contract and no shuttle dressing is needed.

When a shuttle wears unevenly or receives nicks and scars, it is dressed on a belt sander. The surface is polished with steel wool and given a coat of Johnson's floor wax.

The molded-plastic shuttles are not easily damaged, being much stronger than wood. The few replacements that have been necessary in this mill were due to the shuttle flying out of the shed, by being trapped on a slam-off, or by a false change.

The leather of the shuttle boxes and binders is given a coating of petroleum jelly once a week. Each shuttle is removed from the loom and inspected every Wednesday. The loomfixer is assigned one-third of his section on which to do inspection and maintenance work.

Each loomfixer replaces shuttles when needed, even though they are not on the looms assigned to him for maintenance. When a new shuttle is needed, the loomfixer obtains a requisition from the second hand. The assistant overseer gets a copy of the shuttle orders every day. The second hand inspects each loom after a new shuttle has been installed; the assistant overseer spot-checks some of the looms daily.

POWER can be taken off the loom by raising the lug when the new shuttle is used.

The molded-plastic shuttles are being used in this mill

CONTINUED ON PAGE 238

Industrial-Fabric APPLICATIONS Are Expanding Rapidly

Fairly recent developments in fibers, machines, fabric coatings, and processing are rapidly expanding the uses of industrial fabrics.

Needle looms are resulting in better felts for filtration and lamination, and better papermaker's felts are keeping pace with the fast-growing paper industry.

Dacron yarns are making industrial hose that is lighter and stronger than cotton hose; and a wide range of coatings and laminations are available.

This second series of articles on modern industrial fabrics tells how mills are making a number of these fabrics today.

For the first series of articles, see TEXTILE WORLD, Mar., p. 99.

By **RICHARD B. PRESSLEY,** Associate Editor, TEXTILE WORLD

GLASS-FIBER FABRICS Find More Industrial Uses

• At present, 14 mills are weaving glass-fiber fabrics in appreciable quantities for many industrial uses. In manufacture, glass fibers are handled much like filament synthetic fibers in yarn preparation and weaving. Four finishing treatments are used.

• Because of their relative newness, glass fibers are constantly finding new uses.

GLASS-FIBER FABRICS are being manufactured for many industrial uses such as parts for automobiles, airplanes, trains, electronic devices, electrical equipment, and many others.

At present, 14 mills are weaving these fabrics in appreciable quantities. Two yarn producers supply continuous-filament yarns, and one producer supplies both continuous-filament and staple yarns.

Because of their basic properties and various physical and chemical characteristics, glass fabrics have been increasing in significance in recent years.

Properties that make the fibers of great value in industrial fabrics are high heat resistance, low moisture absorption, low space factor or high specific gravity, good thermal conductivity, high tensile strength, durability, dimensional stability, acid and alkali resistance, and nonburning.

Standard Techniques Are Used

Manufacturing techniques now used by most mills weaving glass-fiber fabrics are based on the original research and development program of three mills under contract to Owens-Corning Fiberglas Corp. Manufacture was gradually turned over to qualified weavers and converters. Now Owens-Corning acts merely in an advisory capacity.

Glass-fiber yarns are furnished to weavers in standard yarn plies and numbers on standard packages. But twisting, plying, and winding the yarn are done on standard mill machines with only minor changes.

Either silk- or rayon-type warpers and creels may be used satisfactorily. Multicylinder slashers are used, but only single-ply yarn has to be slashed.

Loom bobbins are wound on automatic filling-bobbin winders. Narrow fabrics are woven on standard looms. Broad fabrics are woven on automatic looms.

Glass yarns are also knitted. These fabrics have the advantage of stretching to contour surfaces, especially when they are used to reinforce plastics.

The first major users of glass-fiber textile products were manufacturers of electrical equipment, wire, and cable. In these applications, resistance to moisture, chemicals, high temperatures, and rot are important factors.

Fabrics Are Combined With Resins

Layers of glass fabric laminated with several resins provide resistance to abnormal physical and electrical stresses. Glass-fiber yarns braided with asbestos fibers provide an insulation with specific properties.

Glass fabrics, tapes, and braids treated with rubber, varnish, silicone, and other electrical insulating compounds are used in large quantities.

Cloth reinforced with plastics is used for aircraft parts, appliance parts, structural building panels, boat hulls, etc. These products are molded to close tolerances, and applying them in production-line operations makes time and labor savings possible.

Fabrics coated with rubber and various resins are used as convertible tops for automobiles, upholstery materials, railroad window shades, marine and aircraft floor and wall coverings, and flexible hot-air ducts and gaskets. These coated fabrics have high tear strength and dimensional stability; and they are resistant to rot, mildew, chemicals, and burning.

Fiber Is Chosen by End Use

Glass-fiber fabrics are woven of continuous-filament or staple yarns to a wide range of specifications to meet the specific end uses. Continuous-filament cloths are lustrous in appearance and are considerably thinner than the fabrics woven from staple fibers. Staple-fiber cloths have a soft sheen caused by the slight fuzziness common to all staple-fiber textiles.

The fabrics are made in several forms: narrow fabrics or tapes, broad fabrics, braids, woven tubing, and knit goods. Much of the fiber goes into cordage.

Glass tapes are woven from continuous-filament yarns in medium and tight weaves. Common constructions of medium weaves are 12x21 to 93x42; tight weaves are 21x38 to 108x46.

Tapes Have Many Applications

Tapes are used most extensively for insulation of electrical apparatus. For this application, the tapes are treated or varnished or they are combined with mica and other materials.

Other common uses are high-temperature protective wrappings on exposed aircraft engine parts and exhausts, pipe insulation, and light control systems.

Staple-fiber tapes are woven in several constructions. Their use is limited to applications where space is not of great importance or where a more-resilient wrapper is needed.

As new molded-plastic products are developed, glass tapes in connection with plastic resins are expected to be used in a wider range of applications.

Many Constructions Are Made

Selecting a broad-woven glass fabric for industrial use is not as simple as selecting a fabric for domestic use. There are five basic variables to be considered: (1) thickness, which ranges from 0.0015 in. to 0.065 in.; (2) weight, which ranges from less than 1 oz. per sq. yd. to 3 lbs. per sq. yd.; (3) type of weave; (4) construction; and (5) yarn number and twist.

Five basic weaves are used. The most common ones are plain, satin, and twill. Construction normally ranges from 16x16 to 60x58, but 100x80 is woven easily.

At present, more than 60 different constructions of broad fabrics are being woven for industrial requirements. New constructions are being developed constantly, and modifications of existing constructions and new after-treatments are expected to result in expanding uses.

Four Finishes Are Used

For industrial use, glass fabrics are usually coated, impregnated, or combined with other materials to make an end-use product.

After a fabric is woven, a special finishing process is usually necessary to provide a bond between the fabric and the coating material.

Four basic finishing treatments are common, and the one used depends on the end requirements.

1. Heat cleaning is used primarily where silicone resins are to be applied as the plastic in laminating. The best adhesion is obtained by removing approximately 90% of the starches and oils from the yarn.

2. Heat treatment is used when the fabric is to be combined under high-pressure lamination with high-pressure resins. This treatment chemically changes the starches and oils used to size the warp before weaving and results in better bond strength and greater over-all strength in the finished laminates.

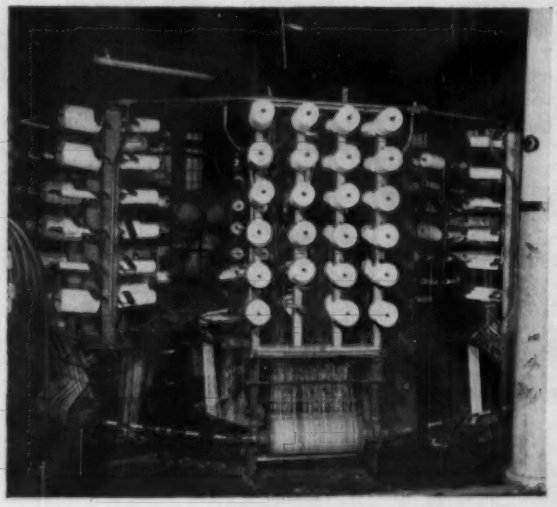
Treatment Improves Properties

3. When a fabric is to be coated with vinyl, rubber, or synthetic rubber, a finish is applied to the gray cloth. This aftertreatment keeps out moisture and improves flex life and wet strength.

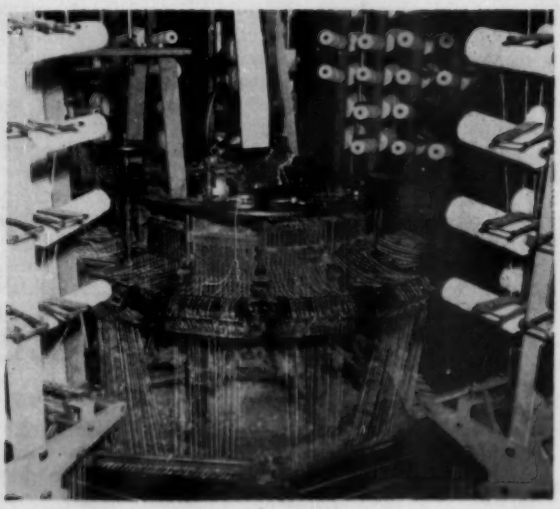
4. A finish is applied when fabrics are to be used in laminate form to reinforce low-pressure plastic parts. These treatments combine heat-cleaning, as described in treatment No. 1, and the application of a moisture repellent to link the glass and the plastic and to provide strength to the finished laminate.

Another glass-fiber textile product is fabricated from strands of yarn rather than a fabric. Parallel ends of the yarn are laminated to a backing material of asbestos, paper, or similar material.

The product is used as an electrical tape, industrial tape, and plastic reinforcement. The low-cost high-strength material has replaced more-expensive products.



CIRCULAR LOOM used to make woven hose is completely surrounded by creels of warp yarn.



WEAVING UNIT inside the creel has positions for two cones of filling yarn.

Dacron Is Gaining On Cotton In WOVEN INDUSTRIAL HOSE

• Users of industrial hose are looking for lighter weight in fire hose. By substituting Dacron hose for cotton hose, they're able to put 46% more hose on a reel.

In 1956, 9-million pounds of cotton were used in fire and industrial hose. In addition to cotton hose, all producers are now manufacturing Dacron-cotton hose, and much hose is being woven from all-Dacron yarn.

The newest fabric for industrial-hose applications is 100% spun Dacron in a single jacket, with filament Dacron used as a filler cord around the hose.

Today, industrial fire hose is being put to tougher, more-varied use than ever before, for many purposes in addition to fire protection; and hose manufacturers are using Dacron for a stronger, more-durable fabric jacket. The jacket must provide burst strength and flexibility and must resist damage from abrasion, chemicals, and mildew.

Because of its special properties, Dacron hose is being used in oil refineries, chemical plants, paper and pulp plants, and steel mills. Approximately 46% more Dacron hose can be placed on a given roll than cotton hose. For example, 1,200 ft. of 2½-in.-dia. cotton hose on a reel can be replaced with 1,750 ft. of 2½-in.-dia. Dacron hose.

Hose of 1- to 6-in. inside diameter is woven on circular looms. In double-jacket hose, an inner jacket is woven first and the outer jacket is woven around it.

After the hose is woven, a rubber liner is drawn into the middle. The hose is cured in 50-ft. lengths with live steam. Curing time is 20 to 30 mins.

Mill Is an Old Weaver

Boston Woven Hose & Rubber Co., Boston, Mass., is one of the oldest producers of woven hose. Its production of hose dates back to the days of the fire-bucket brigade.

At this mill, hose is woven on circular looms in single and double jackets. Very little triple-jacket hose is woven.

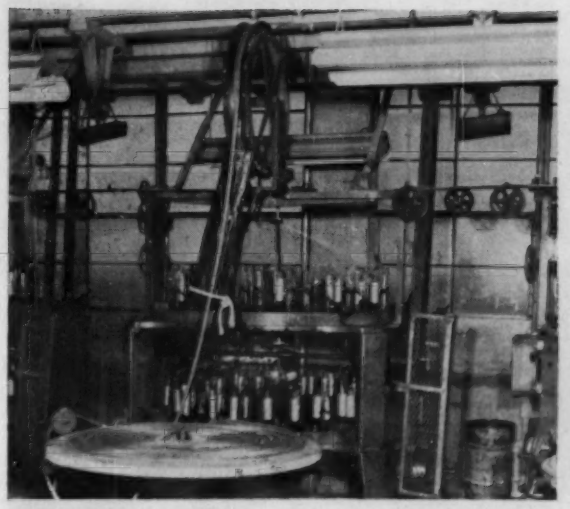
One weaver operates three looms running at 36 ppm. She creels the warp yarn and changes the filling by hand. Filling runs 15 to 20 mins., and two cones of filling yarn are used at once.

Circular woven hose is made in 1-in. through 6-in. dia. in lengths up to 50 ft. A great many more warp ends than filling picks are used. A hose of 2-in. dia., for an example, has 265 warp ends and 7 ppi.

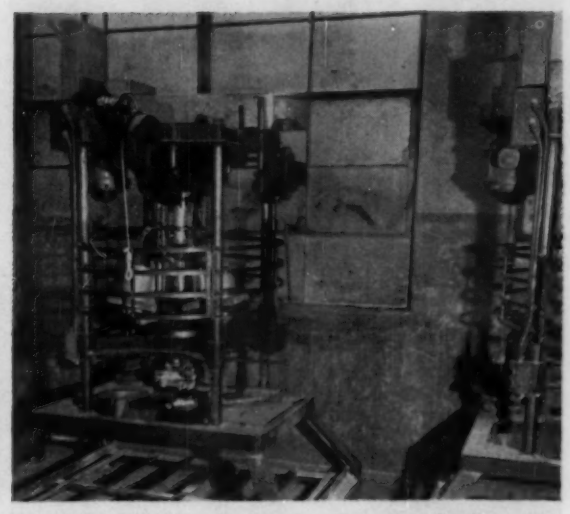
In a cotton-Dacron hose, the warp is cotton and the filling is filament Dacron.

Filling packages weigh 2 lbs. and warp packages 4 to 5 lbs. Cotton filling yarns are 12/30 to 12/80, and cotton warp yarns are 12/7 to 12/25.

Another type of circular weaving at the mill has four filling positions. Two



BRAIDING MACHINE places yarn around a rubber core for ⅛- through 3-in.-dia. hose.



KNITTING MACHINE makes hose from ½- to 1-in. dia. from cotton and rayon yarn.

strands of filling are of fibers and two are wire. Instead of cones, reels are used. This hose is used for gasoline hose, etc.

Dacron Hose Offers Advantages

Norman J. Cyphers, director of research, has this to say about Dacron hose: "Users of hose are going to Dacron for lighter weight, greater strength, and greater flexibility.

"Before World War II and during the period immediately following the war, users thought heavier hose was best. Today they want lighter weight to get more hose on a truck.

"Dacron fire hose is going to be used extensively because of the increasing number of volunteer fire departments. Cotton hose mildews after it's used if it's not dried. Dacron hose does not have to be dried before it's stored. So volunteer firemen like it best.

"Dacron is also resistant to abrasion. And because of the slippery nature of the fibers, the finish is better than cotton hose.

"A lot of hose is chemically treated for water repellency to prevent freezing. Dacron hose absorbs very little moisture and therefore does not have to be treated. Another advantage to Dacron hose is that it remains light in weight because it does not soak up water.

"Cotton double-jacket hose is sold as 400-psi.-test hose. In price, Dacron hose in 400-psi. test is about 18% higher than the 400-psi.-test cotton hose. But most Dacron hose is sold as 600-psi. test, and this hose is about 28% higher than the 400-psi.-test cotton hose."

Two other types of hose are made by Boston Woven Hose: (1) braided and (2) knitted.

In braided hose, the hose is braided

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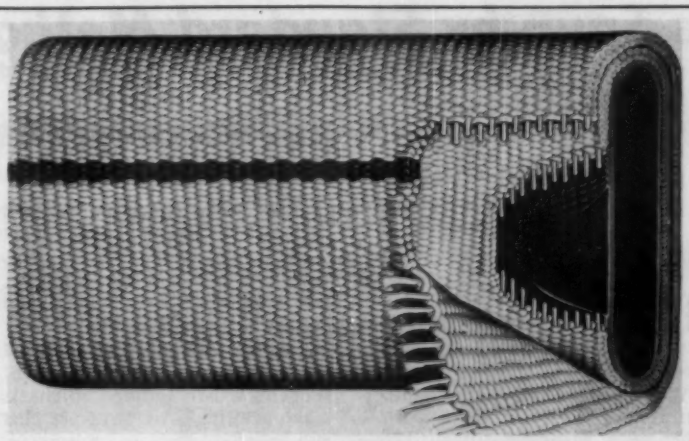


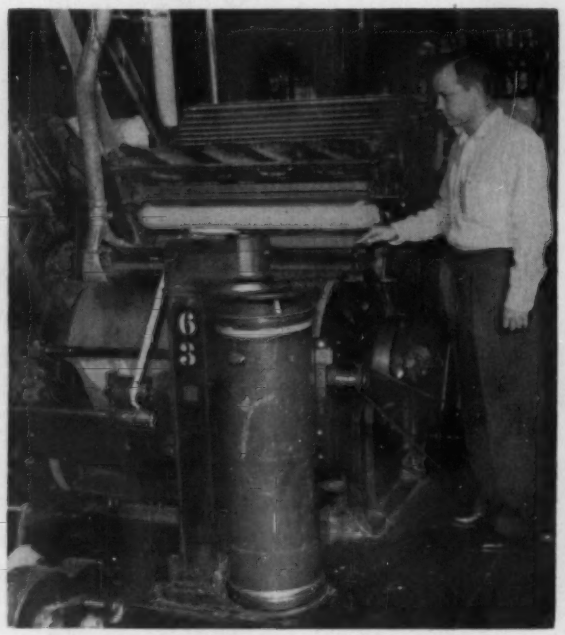
Hose for Starting Jets

One of the newest end uses of Dacron industrial hose is pneumatic starting of jet airplane engines. The new hose was developed by Quaker Rubber Div., H. K. Porter Co., Inc., New York, N. Y., and Roylyn, Inc, Glendale, Calif.

The hose has two layers of high-temperature silicone bonded inside an outer cover of closely woven Dacron.

Jet engines are started by blowing hot air at high pressure through the Dacron hose into the turbine. Older hose couldn't stand the high pressures and temperatures.

The Dacron-silicone hose is an outgrowth of Dacron fire hose that has been made by Quaker for five years.



CARDING SPEED is 11½ lbs. per hr. Woody Brown, overseer of yarn preparation and weaving, checks a card.

TWISTING is one of Whittier's most important operations. James Slaton, technical supervisor, inspects the twist.

INDUSTRIAL-HOSE YARN
Is Spun by Standard Methods

• The cotton yarns that go into industrial hose are manufactured on cotton machinery and by methods commonly used for standard cotton yarns. But one producer of the yarns says its twisting improves its yarns.

THERE ARE THREE MAJOR PRODUCERS of yarn for industrial hose. One is Whittier Mills Co., Chattahoochee, Ga.

At Whittier Mills, hose cord is spun from 1 3/32- to 1⅛-in.-staple cotton. Other cords manufactured are staple Dacron and filament Dacron.

Cotton warp and filling yarns spun are 8s, 10s, and 12s. Warp plies range from 7 to 16, and filling plies from 20 to 80.

Generally, Dacron spun yarns run in the same range of yarn numbers as cotton. Filament Dacron of 1,000 den. is twisted with 5 to 14 plies.

Yarn-producing methods are much like methods used in producing ordinary cotton yarn until they reach the twisting operation.

Since high strength is an important factor in hose cord, the laboratory keeps a close check on the stock.

Every cord has a tensile-strength specification, and each shipment is spot-checked in addition to checks in manufacturing. All yarns are charted and have standards and tolerances.

Methods Used by Whittier

In opening, 16 bales of cotton are laid down for each picker. Cards are Whitin and Saco-Lowell, and they produce 11½ lbs. per hr. Twelve-inch cans are used throughout yarn manufacturing.

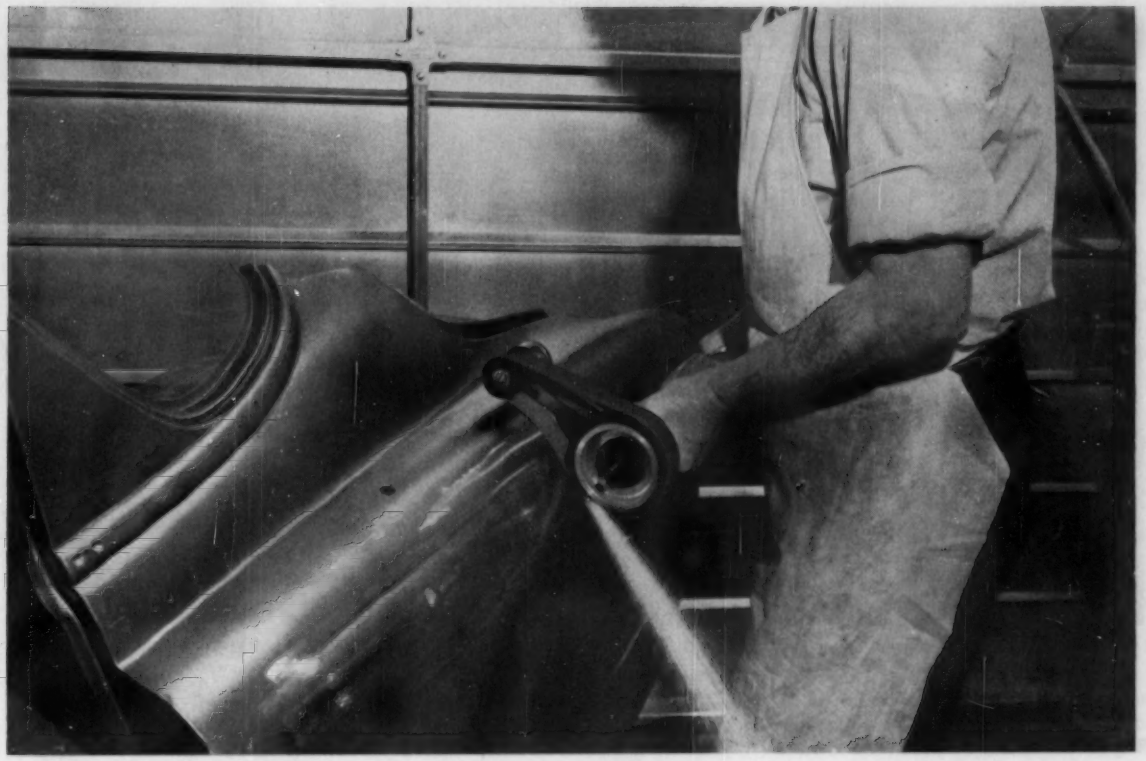
Medley four-roll metallic drawing is used. Sliver is 62 grain, and drawing speed is 135 ft. per min.

Slubbers are Whitin Superdraft. Spinning is Whitin and Saco-Lowell. The rings are 3 ins. in diameter, and 10- to 13-oz. packages are produced. The front roll speed on 8s yarn, for example, is 175 rpm.

Superintendent H. Grady Sammons says: "One of the most important operations in manufacturing yarn for fire hose at Whittier Mills is precision twisting. We have Brownell and Haskell Dawes positive-gear twisters. Since there's no slippage of the spindles, we therefore produce a twisted yarn with identical twist yard by yard."

The spindle speed of the Brownell twister is 1,600 rpm. Yarn packages doffed are 8x5½ ins. Twist of 0.5 to 3.5 tpi. is inserted. The twisters are equipped with Bijur central lubrication.

Twisted yarn is rewound into large packages on Universal winders for shipment.



FINISHED ABRASIVE BELT is used on a portable grinder in an automobile factory. The belt is one of 10,000 standard items.

ABRASIVE FABRICS
Are a Growing Market

• About 113-million square yards of cotton fabrics are being used each year in abrasives. Cotton has the lion's share of the market, but the recent development of open-mesh rayon fabrics for coating is giving rayon a hold.

By **E. W. BRATTON,** The Carborundum Co.

Fabric	Minimum tensile strength		Maximum stretch	
	Warp	Filling	Warp	Filling
Type-I jeans.....	100	40	0.4	1.3
Type-II jeans.....	100	35	0.3	1.2
Type-I drills.....	125	50	0.3	1.2
Type-II drills.....	175	45	0.3	1.3

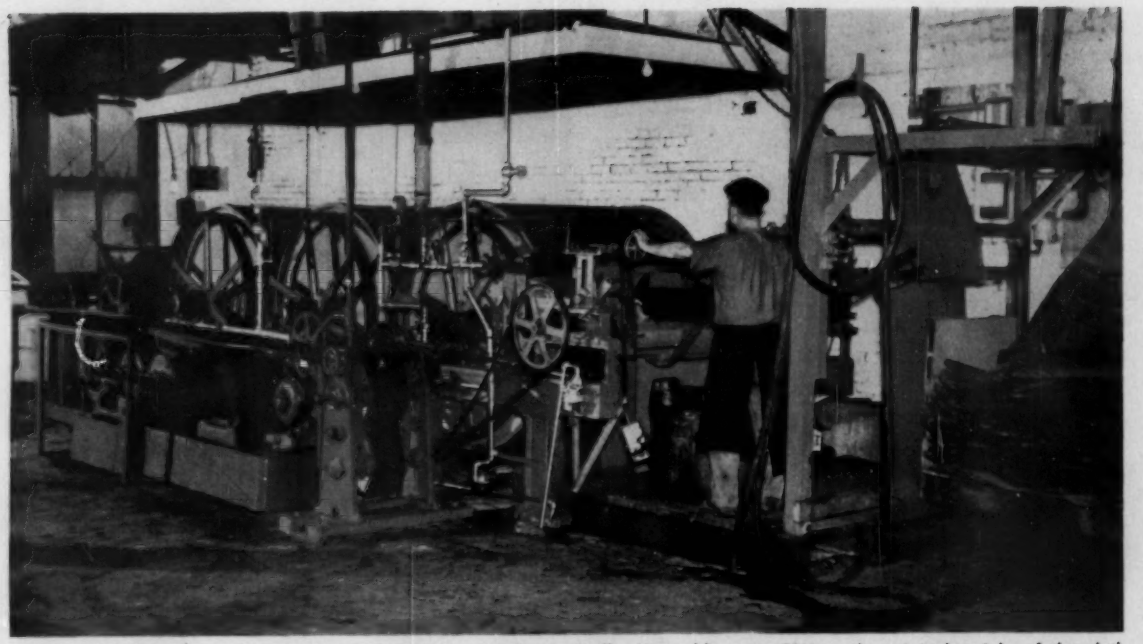
TENSILE STRENGTH of jeans and drills is greater after back filling. For back filling, glues, starches, clays, and resins are used.

FABRICS ARE AN IMPORTANT PART of more than 2,000 types of coated abrasives manufactured today. Over 30,000 products, about 10,000 of which are standard items, are now made.

In the last 20 to 30 years, their use has grown phenomenally, and sales now run about $80-million annually.

The properties of cotton textiles are especially suitable for the abrasives. When the finished product is used on rough-surface metal parts, it has to be strong and flexible and must resist stretching out of shape. No other materials possess these characteristics to such a degree.

Coated abrasives, generally known as sandpaper, consist essentially of a fabric backing material supporting a layer of adhesive with an abrasive grain imbedded in the adhesive. The fabric used is cotton jeans, drills, print cloths, and limited amounts of twills.



CLOTH BACK FILLING at Ohio Falls Dye & Finishing Works, Louisville, Ky., adds up to 50% to the original weight of the cloth.

Rayon Is the Newest Material

Until fairly recently, cotton had the abrasive market cornered; but now rayon fabrics are also being used. Rayon has gained wide attention through a new development in sandpaper that resembles window screen in appearance. The new material, Sand Screen, lasts longer than conventional sandpapers because of its open-mesh construction, which allows sanding residue to pass through the numerous openings and eliminates clogging.

Sand Screen is coated on both sides with sharp, durable silicone-carbide abrasive screen. A 24-square-weave filament-rayon fabric is used as the backing for this product because of its high tensile strength and excellent surface characteristics. These factors make it an ideal support for the fine-grit abrasive.

Fabrics Are Chosen for End Uses

In cotton fabrics, the choice of the kind, grade, and basic weight of the fabric is determined by the end application of the coated abrasive. The abrasives are made in rolls, belts, disks, sheets, molded shapes, and cartridge belts. They are used on ferrous and nonferrous metals, wood, granite, marble, painted surfaces, plastics, glass, and leather.

To meet the specifications for the various end uses, samples of fabrics are weighed on a sensitive scale and their physical properties tested. Particular attention is given to tensile strength and stretch.

To meet the severe metal-grinding tests, cotton jeans and drills are most commonly used. These fabrics are also used for wide belts in 51½-in. widths in one piece and up to 120-in. widths in segments.

Five Qualities Are Needed

Qualities necessary for these fabrics are (1) high tensile strength, (2) tear strength, (3) folding endurance, (4) good flexibility, and (5) availability in unlimited quantities.

Type-I cotton jeans and drills are preferred because they are economical and change little in physical characteristics when subjected to heat, moisture, friction, and other forces.

Warp and filling yarns used for the manufacture of abrasive cloth are spun from Middling cotton with a minimum staple length of 15/16 in.

Few weaving defects are allowed in abrasive cloth; major defects are tie-ins, loose ends, oily spots, grease spots, bunched knots, etc. Specifications allow not more than four major defects in 300 yds. of cloth.

All cloth cuts used average 300 yds. in length, and these cuts are sewed together with a Merrow-type seam to provide a smooth joint. The cuts must be sewed together carefully with the plain side of one cut sewed to the plain side of the other. The plain side of the fabric is coated with adhesive and abrasive.

Twills and Ducks Give Strength

Twills are used for coated-abrasive products where applications require higher tensile strength than is provided by drills. Print cloth is used only when it's combined with paper. It increases the strength and tear-resistance of the paper.

Ducks are used where maximum strength and toughness are required in the coated abrasive.

To adapt cotton textiles for coated abrasives, special treatments are necessary. Approximately 30 different treatments or fillings are used for various abrasive requirements.

Cloth Is Treated Three Ways

The treatments fall into three general categories:

1. Flexible cloth for hand applications. This application requires the minimum treatment, and treatment is

FILAMENT-RAYON FABRIC in open construction permits the abraded material to escape through the sandpaper without clogging the abrasive.

mostly on the print side or backside.

2. Stiff cloth for heavy-duty machine applications. The maximum treatment is required here, and the weight of the basic fabric is increased about 50%.

3. Flexible cloth for hand and machine operations. Treatment is on the print side or backside. When the end product is made flexible by mechanical means, the adhesion of the grit to the cloth is affected less with this treating method.

These properties are built into fabrics with treatments of glues, starches, clays, and resins.

Fabric Is Calendered

Several precautions are used in adapting cotton fabric to the manufacture of coated abrasives:

1. Cloth is a flexible backing and must be supported as much as possible in processing to avoid wrinkling.

2. Heating in dry atmosphere at temperatures above 300° F. for prolonged periods is avoided. The drying-out process makes the cloth brittle; and once the residual moisture is removed, it is difficult to replace.

The manufacture of coated abrasives begins with printing the trademark, brand name, grit, and serial numbers on the fabric. After printing, adhesive is applied by a calender in a carefully regulated amount that varies in concentration and quantity with the size of the grain to be applied.

The fabric passes between two rolls; the bottom roll dips into a tank containing liquid adhesive, and the top roll contacts the backing and transfers the adhesive to it.

Electrostatics Apply the Grain

The adhesive coating is smoothed, if necessary; and the coated fabric passes around the upper roll through a stream of abrasive grain that adheres to the liquid adhesive.

The abrasive grain is deposited on the wet adhesive either by gravity or electrostatic coating. The amount of grain deposited is controlled with great accuracy and can be varied from a very light, open coat to a dense mass.

The backing material, coated with adhesive and abrasive grains, goes to drying racks, where it is draped in long festoons. Before it dries thoroughly it is carried to a sizing machine where a second, lighter solution of adhesive is applied over the abrasive. This second film unites with the partially wet original bond and anchors the grain securely.

Isotopes Control Quality

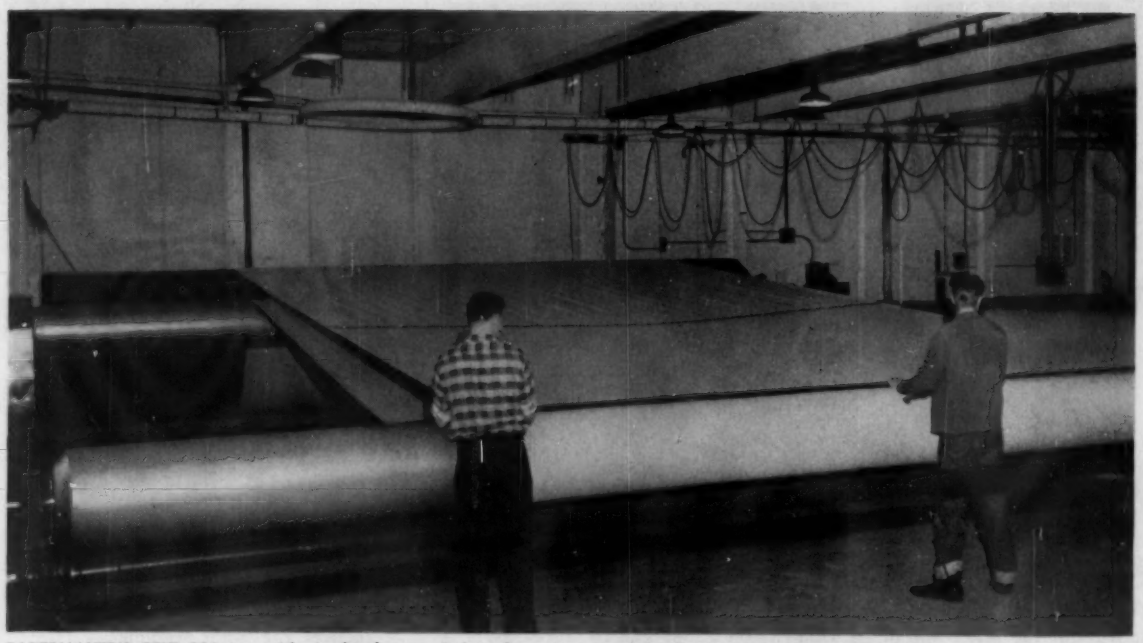
The latest developments in process control employ radioactive strontium and an ultrasonic instrument that automatically hold the adhesive at the proper viscosity. In addition to improving quality generally, the control instruments also reduce rejects, lower adhesive consumption, and increase production.

Final drying or curing is accomplished by festooning the coated abrasive sheets on racks that pass through drying or curing chambers. More than 12 miles of products can be processed at one time in the curing chamber.

CONTINUED ON PAGE 240

Fabric	Width (ins.)	Yards per pound	Warp	Filling	Cloth construction	Minimum tensile strength		Maximum stretch	
						Warp	Filling	Warp	Filling
Type-I jeans	32 and 42	3.28	22s	25s	96x64	72	36	0.80	0.50
Type-II jeans	41	2.95	23s	22s	84x56	68	34	0.80	0.60
Type-I drills	32 and 42	2.58	14s	12s	72x48	87	52	0.80	0.60
Type-II drills	32, 42, 57	2.58	12.5s	17s	76x48	110	36	0.80	0.60
Twills	31	1.75	12.5s	5.53s	88x38	125	90	0.72	0.50
Print cloth	30	6.85	30s	40s	64x60	40	35	0.80	0.40

FABRIC SPECIFICATIONS most critical in the manufacture of coated abrasives are tensile strength and stretch, as shown for warp and filling.



PAPERMAKER'S FELT 320 ins. wide is dried on a Beloit dryer in one of the final operations in felt-making. One of the critical requirements of drying is to avoid wrinkles in the felt.

Giant-Size Equipment Makes PAPERMAKER'S FELTS

• The paper industry has doubled its volume in the last 10 years. This expansion has also expanded textile manufacturing of papermaker's felts. A new 600-in. loom at Appleton Woolen Mills is part of its enlarged operation.

By **F. H. ORBINSON,** President, Appleton Woolen Mills

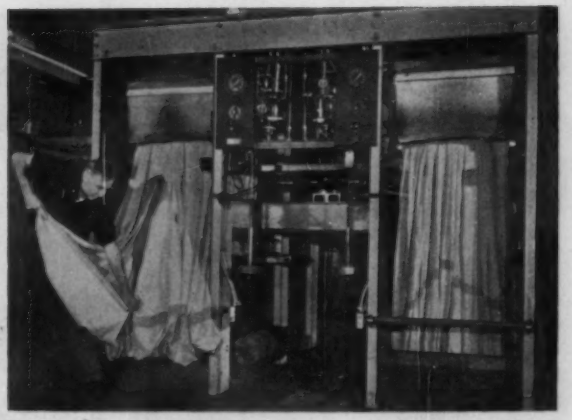
600-IN. C&K LOOM is the newest loom at Appleton Woolen Mills. This piece of equipment represents an investment of $70,000.

APPLETON WOOLEN MILLS, Appleton, Wis., is one of 11 firms in the United States manufacturing papermaker's felts; and it's the only firm west of the Ohio River making this product.

The Appleton firm, which celebrated its 75th anniversary in 1956, was originally a wool-carding mill but changed to the production of woven felts for the paper industry in 1890. Since that time, it has concentrated on this product.

The paper industry is the fifth largest industry in the U.S. and has doubled its volume in the last 10 years. To meet these new production needs, manufacturers of papermaker's felts have also greatly expanded.

WOOLEN SPINNING FRAMES have 120 spindles. Finest-quality yarns are necessary for fine-paper manufacturing.



FULLING PROCESS applies heat, pressure, and moisture to shrink felts to specified length and width, and gives strength.

Felts Have Three End Functions

As an industrial product, papermaker's felt is designed for performance rather than appearance. The felt serves three primary papermaking functions:

1. To remove a large amount of water from the web, or wet paper, in early stages of manufacture
2. To carry the web until it is strong enough, or dry enough, to support itself
3. To provide a finish on the paper. (A felt is designed to give a coarse or fine finish, depending on the paper mill's product.)

Felts carry the web of paper at machine speeds up to 3,000 ft. per min.; and only felts woven in endless or tubular form can provide the smooth, continuous surface necessary to give paper its required finish.

New Loom Is 600 Ins. Wide

Mill equipment to manufacture the felt is giant in size compared with that used in conventional cloth mills. For instance, Appleton's narrowest loom is 150 ins. wide, and its newest and largest loom is a Crompton & Knowles loom 600 ins. wide.

Drying machines are large too; some are 320 ins. wide. Since the equipment is built to manufacture felts, it cannot be readily adapted to other fabric manufacture.

All orders are custom-sized and are determined by the paper machine they're to fit. Felts vary in weight from 1 oz. to 5 oz. per sq. ft., and the total weight of one felt for a papermaking machine may be as much as 900 lbs.

The number of picks per inch also vary; they range from 5 to 150, depending on the type of felt being woven.

Chemical Research Improves Felts

Recent research in chemical treating of felts is extending the life by making them resistant to bacteria and heat deterioration. In addition, chemical treatment is adding characteristics of openness and softness.

Although there is no standard construction for papermaker's felts, the felts are made in 14 classifications and the choice depends on the grade of paper to be manufactured.

Some felts are woven endless on the looms; others are spliced after they're woven to tubular shapes to give a continuous surface on the paper machine.

Finished felts are 20 to 300 ft. long and range from 50 to over 300 ins. wide.

When no finish is required on the paper, felts are coarse, tough, and porous. But when a smooth finish is important, as in making fine writing and printing papers, extra-fine felt weaving is necessary.

Synthetic Fibers Add Durability

Many felts are all wool. In recent years, however, synthetic fibers have been blended with wool to give added durability. One range of these blends is 10 to 50% of nylon or Dacron with wool.

Yarn for felts is manufactured at Appleton Woolen Mills on the woolen system. However, a few plants use the American system. Appleton buys worsted yarns made on the Bradford system. The mill uses only spinning frames, no mules.

In carding, spinning, and twisting, standard woolen machines are used. Warp yarns are beamed in sections from jack spools. The present warper is a Davis & Furber model 540 ins. wide. Warps are not slashed.

Filling for looms is rewound on Whitin-Schweiter automatic winders. The loom-bobbin length is 10 ins., and the bobbins are used in 20- and 28-in. shuttles. Cop shuttles of the same dimensions are also used.

The loom speed of the 600-in. loom is 30 ppm.; 150-in. looms run at 60 ppm. All looms are C&K and are equipped with Knowles head motions.

Loom beams have 28-in. adjustable heads and 6-in. metal barrels. Two beams are used on wide looms for ease of handling; the two sections permit separate warping when necessary.

The looms run from one to three shuttles.

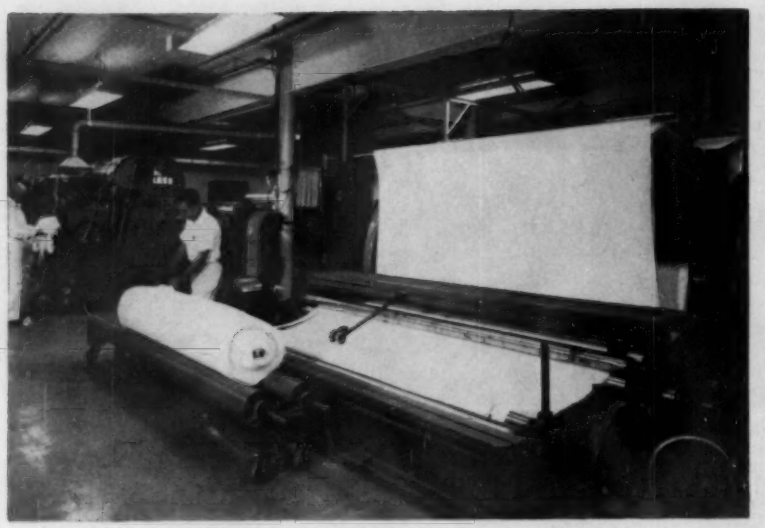
Finishing Controls Specifications

Felt is inspected on the looms as it's woven; it's inspected again after burling and is inspected a third time after it's finished. Since only first-grade felt is sold, quality checks in every production department are strict.

Finishing processes include fulling, drying, napping, and singeing. Close specifications of width and length must be met.

The fulling and drying machines handle felts up to 900 lbs. in weight. This equipment is designed to size felts down to accurate paper-machine specifications, allowing a variable of only 1 or 2 ins.

Accurate fulling and drying are the outstanding characteristics of woven-felt manufacturing.



LAMINATING FELT is carded at the left and then punched on the James Hunter needle loom at the center as part of a continuous operation.

Newer FILTER FABRICS Are Made on Needle Looms

• The newest filter fabrics and fabrics for laminating are made from all-Dacron and all-Orlon fibers on needle looms. The fabrics don't disintegrate in chemicals and resist high temperatures.

A LITTLE-KNOWN BUT FAST-GROWING INDUSTRIAL FABRIC is felt produced on needle looms. At present, more than 25 American mills are producing the felts in substantial quantities; and there's a fair scattering of foreign producers.

The production method used for needle-punched felt is basically a variation of the nonwoven-fabric production method. In its simplest form, the punching process consists of first preparing fibers on cards or garnetts to form a batt or lap of the required weight and then passing the batt through the needle loom, where the fibers are firmly interlaced with barbed needles thrust through the batt.

Production Is 300 Yds. per Hr.

Burlap, and sometimes paper, supports the batt at the needle loom and supplies the strength necessary to feed the batt through the machine. It also strengthens the punched fabric.

Felts are made in thicknesses of $\frac{1}{8}$ to $1\frac{1}{2}$ ins. and in widths up to 150 ins. Since the operation from feeding through punching is a continuous one, production is as high as 300 linear yards per hour at the maximum width.

The felts are made from jute, sisal, hair, and similar fibers and are used for carpet linings, insulating felts, slipper felt, cartridge wadding, etc.

Synthetic Fabrics Are New

But recently, high-quality fabrics from Orlon and Dacron fibers are being produced on the needle looms in thicknesses as low as 77 mils and widths up to 40 ins. in any required length.

The Orlon and Dacron products are further processed after they come from the needle looms. When heat and pressure are applied to a punched Dacron batt, the material is shrunk 50%, and it becomes a felt.

After shrinkage, typical fabric dimensions are 22 oz. per sq. yd., with a thickness of 110 mils, and 19 oz. per sq. yd., with a thickness of 77 mils.

Troy Blanket Mills, Troy, N. H., is a leading producer of the Orlon and Dacron fabrics. The fabrics are used as filters, reinforcements for plastics, electronic applications, and insulations.

The fabrics solve some of the tough problems of the laminator by providing (1) a good surface, (2) abrasion resistance, (3) chemical resistance, (4) stain resistance, and (5) good electrical properties while wet or dry.

One of the chief advantages of the felt as a laminating material is that it provides great strength without a binder or adhesive; tensile strength is as high as 2,000 psi. Therefore the

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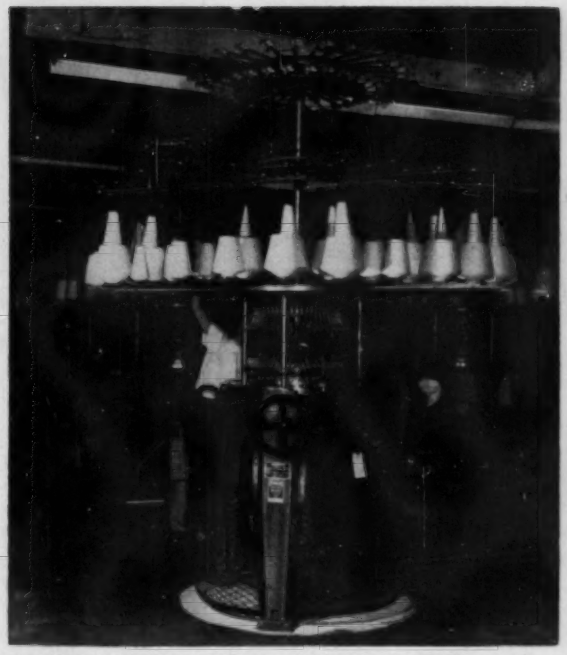

INDUSTRIAL FABRICS made on circular jersey machines such as these include meat bags, wiping cloths, and upholstery fabrics. The production of upholstery fabrics, which are plastic coated, is up to 100 yds. per hr.

RASCHEL MACHINES are used to knit fish nets, laundry nets, mosquito nets, and dishcloths. One 24-gauge machine running 260-den. nylon will produce 100 lbs. of laundry-net fabric per shift.

KNITTED INDUSTRIAL FABRICS
Cover a Wide Range of Products

- Fabrics made on circular machines are used for meat bags, wiping cloths, upholstery, pot cleaners, hose pipes, and other varied uses.
- Raschel-knit fabrics are used for laundry nets, mosquito nets, fish nets, dishcloths, ironing pads, and press cloths.

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

BECAUSE CIRCULAR KNITTING is the fastest and cheapest method of converting yarns into fabric, several industrial fabrics where strength and rigidity are not required are made by this method. Among these fabrics are wiping cloths, meat bags, and knitted tubing for sleeves to be used on bolts of synthetic fabrics, rayon cakes, and dye springs.

Singles cotton yarn is generally used on these machines, but rayon and nylon are knitted for special uses. Cotton yarn for wiping cloths and meat bags has no special requirements such as evenness or freedom from neps, and sometimes yarn that is unsuitable for underwear is used. Meat bags and wiping cloths are made on coarse-gauge jersey machines, but finer machines with alternate needles removed are often used.

Machines Knit 300 Yds. Per Hr.

Smaller machines are used to make fabric for covering hams, while the larger machines are used for fabric to cover animal carcasses. A 4½-in.-dia. machine with 96 needles knitting 26s yarn produces cloth with 85 yds. per lb. A 36-feed, 14-in.-dia., 4½-cut machine with 26s yarn will yield cloth

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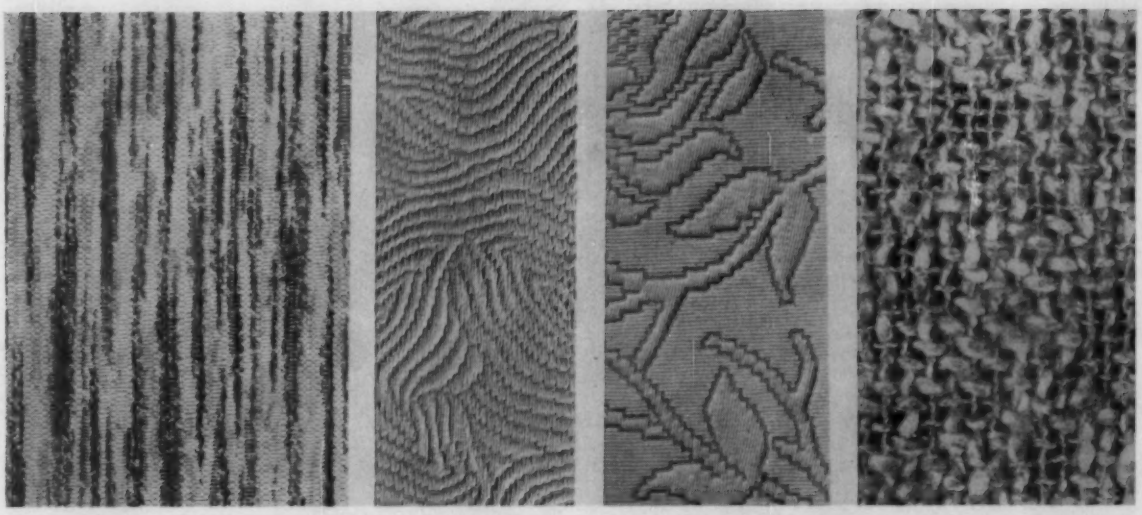


THESE UPHOLSTERY FABRICS are vinyl sheeting laminated to cotton backing. Embossing, overprinting, and valley printing produce effects difficult to distinguish from an all-fabric material.

COATINGS Multiply Industrial-Fabric Uses

- Industrial coated fabrics originally were built around constructions intended for apparel or other domestic uses.
- Today, a wider choice of coating materials and fabrics designed for the purpose have increased the usefulness and serviceability of industrial fabrics.
- Here are outlines of the principal methods and materials used in producing industrial fabrics for many purposes.

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

MANY FABRICS ORIGINALLY DESIGNED for domestic use are converted to industrial purposes when they are coated with one or more of the hundreds of elastomers and plastics available today.

Until a few years ago, a very limited choice of materials was available for the purpose of modifying a plain fabric to industrial uses. Natural materials such as tar, pitch, and linseed oil were first used to make fabrics waterproof. The discovery of vulcanization provided an important new material—rubber.

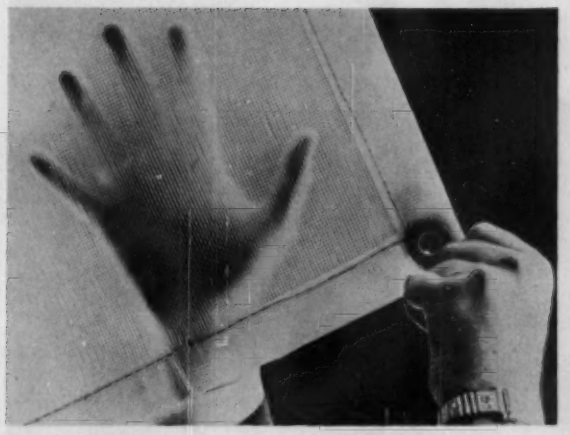
At the close of the last century, nitrated cotton, called variously celluloid and pyroxylin, became important as a coating medium. It still retains an important position in the market because of its remarkable covering power and reasonable cost.

Rubber and pyroxylin enabled fabric coaters to produce many improved industrial fabrics; but where temperature extremes or solvents were involved, abrasion was present, or bulkiness was a drawback, many of the coated fabrics were far from ideal for the intended purpose.

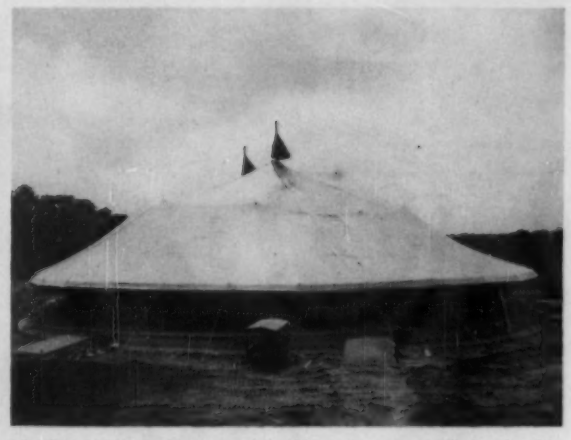
Prior to World War II, chemists had developed Thiokol and neoprene. World War II spurred the development of the GR-S rubbers, butyl rubber, and the acrylonitrile polymers. Close on the heels of the rubbers came the new resins and plastics—polyethylene, polyvinyl chloride, cellulose acetate-butyrate, the methyl methacrylates, the styrenes, the vinylidene chlorides, the fluoroethylenes, and others.

With such a variety of materials available, it is possible today to produce a coated or laminated fabric to almost any specifications.

One of the most rapidly developing uses for coated fabrics is truck tar-



TRANSLUCENT TARPAULIN material, made from Fortisan 36 sandwiched between two layers of vinyl resin, provides wet-weather protection and lets light through at the same time. The tarps are light and resistant to sunlight.



NYLON AND VINYL are combined here in a strong, light, durable fabric well suited for this 120x160-ft. theater tent. The vinyl in this case is a robin's-egg blue; the material can easily be colored in a wide variety of shades.

paulins and the huge covers that protect ball fields from the weather. The tarpaulins are usually 5-oz. nylon fabrics coated with neoprene. The finished fabrics will weigh 12 to 16 oz. per sq. yd.

Vinyl resins are also used with light nylon fabrics to produce tents, playing-field covers, temporary garages, and the like. Consumption of nylon fabrics for these purposes has soared from 1-million square yards in 1953 to over 9-million square yards in 1956.

Another combination—Fortisan 36 fabric with vinyl plastic—has found ready acceptance in the temporary-shelter field. Applications include linesmen's housings, protective housings for airplane mechanics, and canopies over ship batches. The covers are translucent and transmit most of the light that falls on them.

Fabrics Used for Duct Work

One of the important industrial uses of coated fabrics is for ducting, such as is used in mine heating and ventilating. The requirements here are good abrasion resistance and the ability to stand temperature variations from −50 to 300° F. The neoprene class of substances fills this bill very well.

Industrial aprons are also often coated with neoprene. Neoprenes retain their flexibility, are oil and chemical resistant, and can be made fireproof.

Generally, heavy-duty coated fabrics have coatings based on elastomers like neoprene in one form or another.

How Coatings Are Applied

Fabrics are coated for special purposes by two basic methods, coating or laminating. Coating methods include knife-coating, calender-coating, and spraying.

Most manufacturers of industrial fabrics specialize either in coating by knife or calender or by laminating. Some produce very diversified lines.

Take Aldan Rubber Co., Philadelphia. Aldan employs both the coating method and the calendering method to produce tarpaulins, rainwear, mine ducting, industrial aprons, and chemical workers' apparel fabrics. Aldan also produces luggage fabrics, heating-pad goods, ice-bag materials, glove gauntlets, ironing-board covers, rug bindings, conductive sheetings for hospital use, and gasket materials.

The plant uses woven cotton, nylon, silk, and glass fabrics to a total of several million yards per year.

The coating materials include natural and synthetic rubbers, vinyl, neoprene, Hypalon, and other synthetics. Raw materials are blended at the plant to produce coatings that will meet customers' specifications. Coatings that resist heat, cold, oil, and chemicals are produced. Any or all of these qualities must often be compatible with wearability, durability, and reasonable cost.

Another specialist in the coated-fabrics field is Masland Duraleather Co., Philadelphia. Its line is primarily upholstery, augmented by wall coverings. Starting in 1919, the company soon became an important producer of pyroxylin-coated fabrics for many purposes.

When the vinyl resins came in, Masland was quick to see the advantages of the new material and since the end of World War II has increased its volume in the upholstery field 1,800%.

All blending, mixing, film-forming, laminating, embossing, and printing are performed at the plant.

An interesting development has been the 100% increase in the last year in the use of knitted fabrics as a backing for the better grades of vinyl upholstery. The elasticity of both resin and backing produces a combination that is easily contoured to curves and resists permanent stretching and bagging. Upholstery of this type weighs 18 to 40 oz. per sq. yd.

How Backing Fabric Is Chosen

Cotton fabrics selected from standard constructions are often completely suitable for coating and conversion to specialized uses. In 1956, approximately 250,000 bales of cotton were consumed in making coated fabrics of all types.

Cotton has several advantages; it is reasonable in cost, weathers fairly well, and provides a good bonding surface for the coating material. If it gets wet in service, it is stronger

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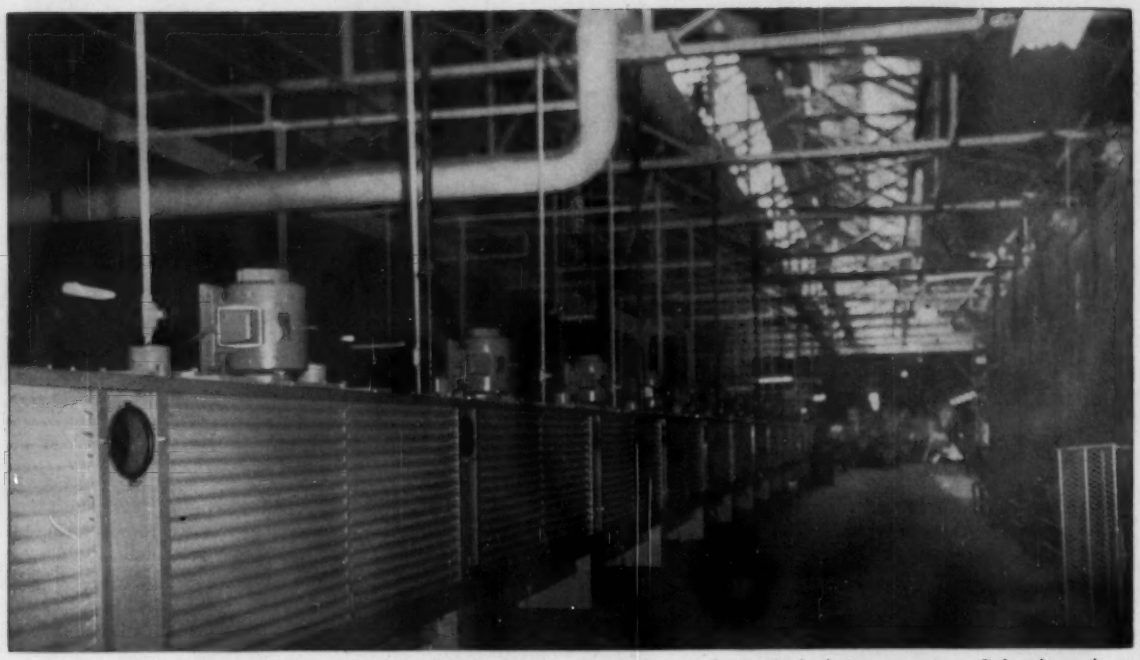
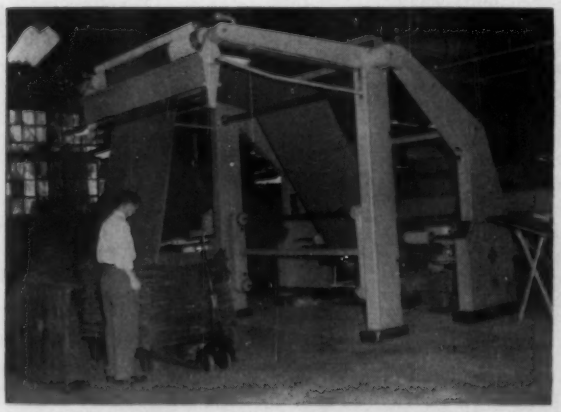


COMPACT HOUSING and unusual length of the Famatex tenter account in part for its high drying capacity. Only about three-quarters of the housing could be included in this view.

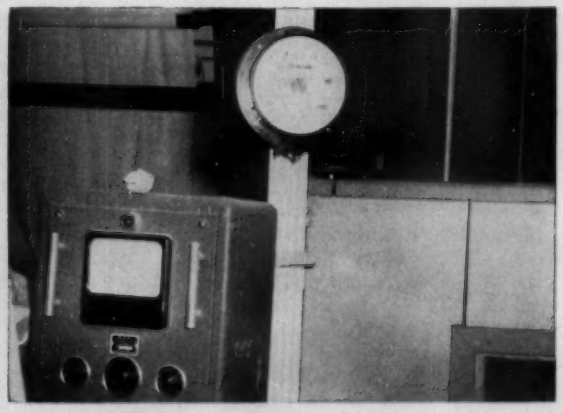
Blumenthal Speeds Up Heavy-Fabric DRYING

Drying heavy fabrics has always presented serious production problems to the dyer and finisher. The Caromount plant of Sidney Blumenthal & Co. has improved its drying situation with a new tenter that—

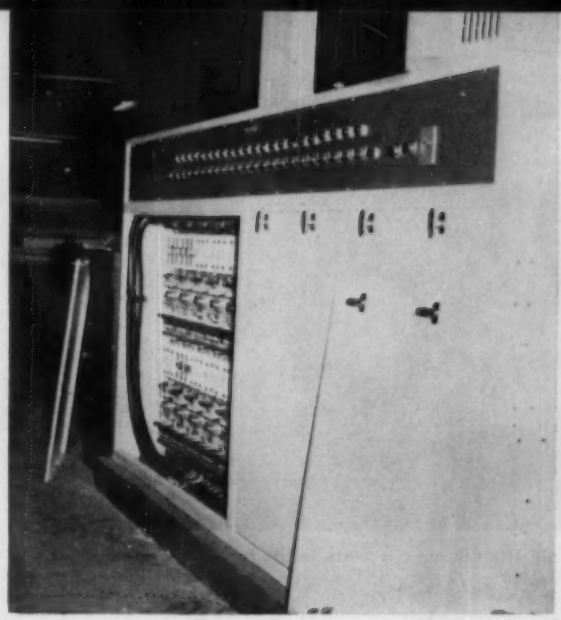
- Produces three to five times more dry fabric than older equipment
- Provides automatic control of several phases of the operation



COMBINED SWING and roll batcher complete the delivery end. There are no exposed belts, chains, or gears in this structure; all mechanism is enclosed in the supports.



SPEED OF TENTER is controlled through moisture meter at left center. The yards-per-minute indicator (center) is actuated by a small generator coupled to the drive shaft.



CONTROL STATION at entering end of the tenter provides finger-tip control of overfeed, selvage tension, and frame operation.

DRYING RUBBER-BACKED CARPETING that may weigh up to 16 oz. per sq. yd. at speeds better than 40 linear yards per minute is a good trick if you can do it, and Blumenthal's Caromount plant is doing it.

To get this sort of production in textile drying, the plant management looked for equipment that would dry quickly without overdrying and that would be adaptable to several styles of carpeting.

The dryer it chose is a Famatex single-pass tenter equipped with a combination clip and pin chain. This basic equipment is enclosed in an insulated housing, 158 ft. long, of very compact design. The housing does not extend to the floor and is approximately 4 ft. deep.

The frame will handle goods up to 120 ins. wide. Auxiliary equipment includes automatic temperature control, overfeed control, automatic speed control through a moisture-detecting instrument, and an inter-com system. Automatic stopping for faulty pinning or damp goods is also provided.

The tenter has control stations at each end equipped with start-and-stop controls, with speed control and width control buttons added at the delivery end. Drive is through a fluid coupling; and after a stop for any reason, the frame reverts to low speed for the start-up.

Air Volume Speeds Drying

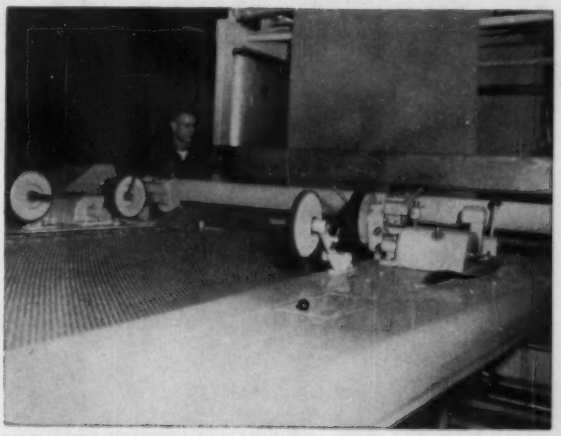
While these refinements are of interest, the primary function of the tenter—drying goods—has been achieved by supplying tremendous quantities of heated air to the job.

Air is supplied by 56 radial-flow fans driven by 28 10-hp. motors. The close location of the fans in respect to the fabric permits short ducts that terminate in narrow slots through which the hot air is directed against the fabric. Four exhaust fans remove vapor-saturated air through ducts to the roof.

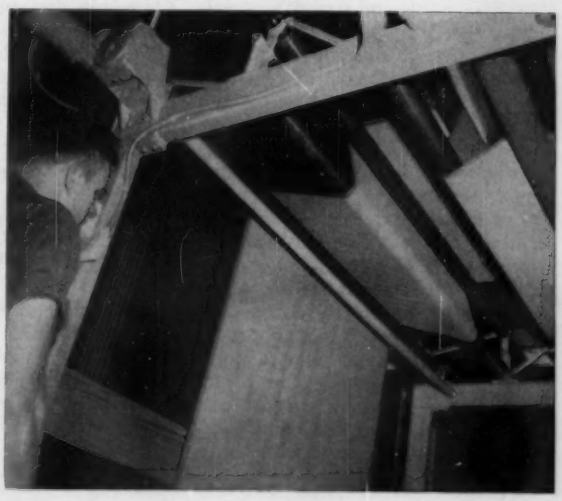
The guider system at the entering end provides very rapid alignment of the entering end of the clip rail with the cloth selvages. Minor adjustments are taken care of by a motor mounted directly on the rail screw; if a major misclip impends, a second motor cuts in to drive the rail swiftly to the selvage. If the cloth finally escapes the clips, the frame shuts down automatically so the misclip can be repaired before the fabric travels into the housed area.

Mounted ahead of the tenter are a scutcher, a J-box, a heavy two-roll pad actuated by air pressure, and a weft straightener.

With the new setup, Blumenthal has the drying capacity and flexibility to handle its varied line of upholstery and floor-covering fabrics far in excess of older facilities.



ENCLOSED CHAIN and overfeed gear used for fabrics that are pinned on the tenter are shown here. On this run, the clips are holding the fabric.



BOW AND SKEW are removed from the fabric by this setup of expanders and tilting rolls. Separate motors actuate the expanders and the rolls.

SIX HOPPERS and a waste feeder supply the first cleaning line.

CARDS produce a 55.5-grain sliver at 10 lbs. per hr.

How Buck Creek Makes YARN for Cotton Flannel

Buck Creek Cotton Mills, Siluria, Ala., produces about 200,000 lbs. of napped goods weekly. Here's how the yarn is made—

By **WILLIAM G. ASHMORE,** Associate Editor, TEXTILE WORLD

Buck Creek Cotton Mills, Siluria, Ala., is a major producer of cotton napped goods. Here's how the company, a few years after it was almost destroyed by a tornado [Textile World, Aug., '54, p. 60], operates its carding and spinning departments.

Two lines of opening equipment process more than 2,000 lbs. of cotton per hour and remove 4.5% waste. Forty-eight bales of cotton are laid down for the first line and 32 bales for the second. Eight bales are fed to each hopper.

The first line consists of six H&B blending feeders, a Lummus blending hopper, a beater section, a Super-Jet cleaner, another beater section, a second Super-Jet, a Centrif-Air cleaner, a Lummus gyrator, and a distributor.

The second line, used for a different blend, is shorter. There are four blending feeders followed by a Centrif-Air cleaner, a Buckley-beater section, a second Centrif-Air cleaner, a Lummus gyrator, and a distributor.

Five Pickers Are Used

Three single-process pickers serve the first line of opening and cleaning equipment and two serve the second line. All the pickers have Aldrich synchronizers, moisture-regain indicators, and Lummus gyrators.

A 20-in. Aldrich porcupine beater is used in the breaker sections and a 20-in. Kirschner beater in the finisher sections of all the pickers. The breaker beater runs 980 rpm. with a fan speed of 1,160 rpm.; the finisher beater and fan run a little faster—1,065 rpm. and 1,370 rpm., respectively. At present, a 16-oz., 52.75-yd. lap is made by each picker at 324 lbs. per hr. Waste is about 1.25%.

The pickers operate 15% longer than the opening equipment to keep production in balance, which means that speeds have to be controlled carefully. Variation, checked twice a week, is 1.25% CV on the Saco-Lowell lap tester.

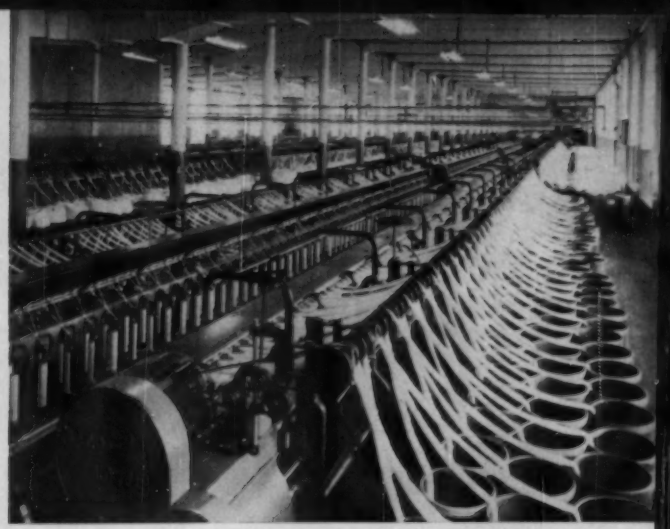
The mill operates 77 Saco-Pettee and 55 H&B cards. All the cards are equipped with individual drives and ball-bearing comb boxes. Recent improvements include rebuilt feed-roll journals and side shafts. Trumpets have been rebored to assure correct sliver diameter.

The cards produce a 55.5-grain sliver at 10 lbs. per hr. net. Cylinder runs 165 rpm., doffer 10 rpm., and lickerin 453 rpm. Waste removed averages 4%.

The cards are ground for 8 hrs. after processing each 2,600 lbs. of stock. During the grinding, all gears are cleaned and the cards are reset. This procedure has improved evenness and eliminated eccentric doffers. The cards are stripped twice every 24 hrs.

Four-over-four Ideal drawing frames with fluted metallic rolls follow the cards. The 12 breaker and 12 finisher frames, six ends up, are making a 55.5-grain sliver at 198 ft. per min. Thirty-three coils per layer are put in 12-in. cans. Uster quadratic CV is 4.4% for the finisher drawing.

DRAWING FRAMES put 33 coils per layer in a 12-in. can.

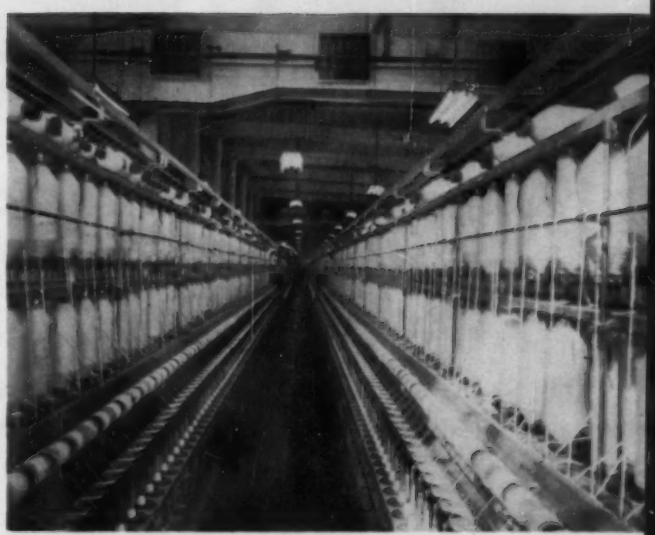


ROVING is made on 10x5 frames with a spindle speed of 900 rpm.

Production Data for Three Warp Yarns

Yarn size	10s	18s	28s
Hank roving	0.50	0.90	1.00
Spindle speed (rpm.)	10,000	10,000	10,000
Traveler speed (ft. per min.)	4,740	5,900	5,900
Ring size (ins.)	2¼	2¼	2¼
Traverse (ins.)	10	10	10
Front-roll speed (rpm.)	195	183	142
Twist multiplier	4.20	4.20	4.20
Draft	20	20	28
Bobbin length (ins.)	11	11	11
Full-bobbin weight (oz.)	6.8	6.8	6.8
Production per spindle hour (lbs.)	0.121	0.063	0.033
Production per spindle (lbs. per 120 hrs.)	13.5	7.1	3.8
Probable efficiency (%)	92	94	96
Doffing time (hrs.)	3½	6¾	13
Spindles per spinner	2,176	2,720	3,264
Sides per spinner	16	20	24

WARP YARN, after the frames are changed over, will be made as shown in this table. Quality is expected to improve substantially.



FILLING FRAMES have Casablancas drafting; warp frames are being changed over to the Roberts system.

How Roving Is Made

Fourteen Saco-Lowell 10x5 FS-3 roving frames make 0.90-, 1.30-, 1.50-, and 2.00-hk. rovings. Spindle speed is 900 rpm., and jack-shaft speed is 360 rpm. About 26 oz. of roving are put on the bobbin.

Operational data for the four hank rovings are:

0.90-hk. roving — front-roll speed 212 rpm., draft 5.96, evenness 8.2% (Uster quadratic CV), doffing cycle 1 hr.

1.30-hk. roving — front-roll speed 165 rpm., draft 8.63, evenness 9.2%, doffing cycle 1 hr. 45 mins.

1.50-hk, roving—front-roll speed 140 rpm., draft 9.95, evenness 10%, doffing cycle 2 hrs. 20 mins.

2.00-hk. roving — front-roll speed 130 rpm., draft 13.2, evenness 10.2%, doffing cycle 3 hrs. 20 mins.

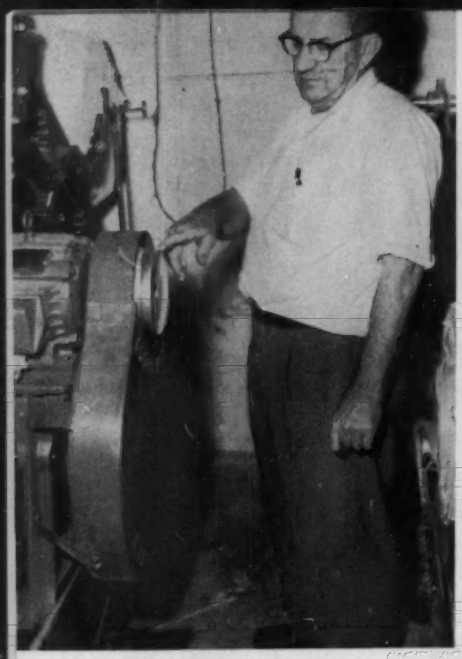
Spinning Room Has 76 Frames

Present warp spinning consists of 36 H&B 272-spindle frames equipped with slip draft and 4 H&B 264-spindle frames with Casablancas long draft. These frames are 4-in. gauge and have 2¼-in. rings.

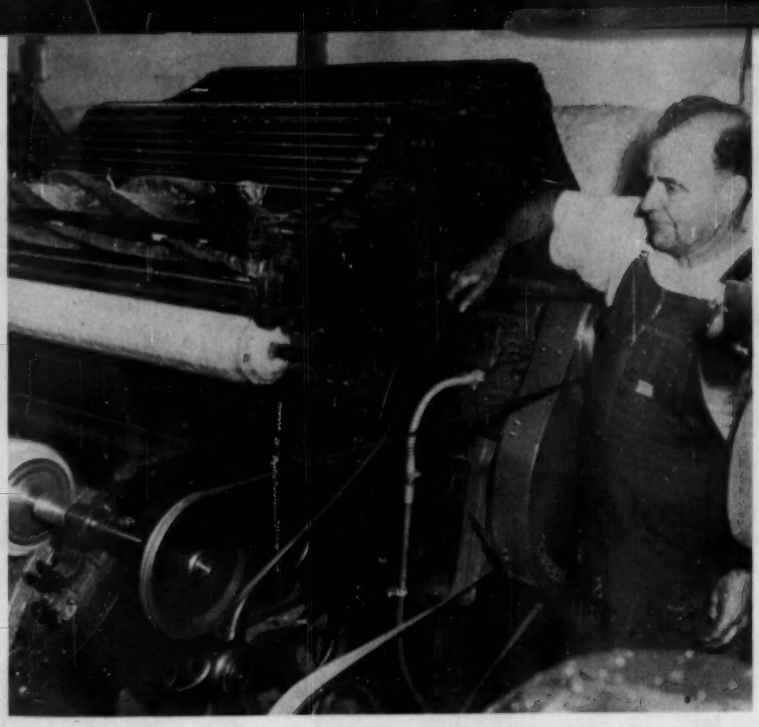
For 10s warp, an average size, spun on the slip-draft frames, twist multiplier is 4.50, spindle speed 7,100 rpm., front-roll speed 165 rpm., break draft 1.30, middle draft 1.05, front draft 6.95, and total draft 9.5. Break factor is 1,900 and ends down run from 35 to 45 per thousand spindle hours. Evenness is 21.5% Uster quadratic CV. About 4 oz. of yarn are put on each bobbin. Doffing cycle is 2¼ hrs.

Warp frames are to be equipped with the Roberts change-over. Proposed operational data for three typical yarns are shown in the table.

For the present, soft-twist filling will continue to be spun on 36 H&B 264-spindle frames with the Casablancas drafting system. Gauge is 3¾ ins., and ring size is 1 9/16 ins. For 28.5s yarn, break draft is 1.30 and total draft is 14.



DRY-FLUID DRIVE and 1½-hp. motor require little aisle space. Outside pulley is for stripping.



TENSION on the loose belt to the stripper pulley is controlled by hand.

Kings Mountain Installs "Dry-Fluid" CARD DRIVES

• The first production installation of individual card drives employing the dry-fluid-drive principle was made at Kings Mountain Mfg. Co., Kings Mt., N. C. Here are the results the mill is getting—

By **WILLIAM G. ASHMORE,** Associate Editor, TEXTILE WORLD

KINGS MOUNTAIN MFG. CO., Kings Mt., N. C., has been making carded yarn since 1888. Until recently, most of the card-room machinery was driven by an overhead shaft that ran from one end of the room to the other.

The management decided to eliminate the heavy 3¼-in. shaft and its maze of belts and pulleys in the interest of safety and efficiency. Various kinds of individual drives were considered.

For the cards, it was decided to use the Dodge "dry-fluid" Flexidyne drive. This drive, similar in principle to modern automobile fluid drives, uses 1.8 lbs. of very small heat-treated steel shot to transmit energy [TEXTILE WORLD, Sept., '56, p. 121].

Twelve Drives Are Installed

The big drive shaft was removed, and all 33 cards were overhauled and rearranged for straight-line production. Twelve Saco-Lowell cards were equipped with the dry-fluid drive and relocated in an adjoining room built especially to house them.

A new lightweight 2⅞-in. overhead shaft was put up to drive the 21 cards remaining in the old part of the mill. This shaft is considered temporary, since the management plans eventually to put individual drives on all the cards.

The 12 cards equipped with the new drive have continuous strippers. To maintain proper carding speed, a larger pulley and different belts had to be added before the drives were installed. This modification was made by the mill shop.

The shaft-driven cards also have continuous strippers; so some modifications will be necessary when they are converted. The drives can be installed easily, however, by cutting a keyway in the shaft and tightening a few bolts.

Normally, control switches would be mounted on the card's chassis at some convenient point. At Kings Mountain, however, the switches are mounted on the wall back of each card at a point higher than a man's head. This arrangement prevents the switches from being bumped or flipped accidentally.

CONTINUED ON PAGE 234

MODERN METHODS
Change the Knitting Picture

Knitting mills change their methods and products more than other mills because of new fibers, the intense competition in all sections of the knitting business, and the seasonal patterns that occur each spring and fall.

Stretch socks have introduced a host of new techniques. The packaging of these socks on cardboard to present them as attractive merchandise is eliminating the boarding processes.

Full-fashioned and seamless hosiery mills are adopting new methods to combat the old problems of length control and quality control. New machines are relieving operators of manual duties and increasing work assignments.

Exciting things are happening in the underwear and outerwear business. New methods and equipment are being introduced to solve the old problem of shrinkage with mechanical and chemical finishing techniques. Scientific instruments are being used to set up knitting machines.

New methods and machines for knitting tricot cloth are improving production to a point where this method of cloth manufacturing will become the least expensive. Beams are now made by the yarn manufacturer, new machines have doubled the production of machines made two years ago, and new handling methods and cloth scanning devices are being worked out to further raise efficiency.

This special section shows how some of these methods are being used.

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

ACME HOSIERY MILLS' new knitting and looping plant, built specially to produce women's seamless hosiery, is air conditioned throughout.

Modern Ideas at Acme's NEW HOSIERY MILL—

Include—

- Quality-control programs that keep faulty work low and leg lengths level
- Training systems that reduce learning time and help operators do a better job
- Materials-handling methods that keep work flowing smoothly through the plant

Acme Hosiery Mills, Inc., has been making women's seamless hosiery in Asheboro, N. C., since 1909. Many physical changes in the plant have taken place since then, and one of the greatest changes took place last year when the knitting and looping processes were moved to a new building on the edge of town.

The new building is a 55,000-sq.-ft. single-story brick structure that is completely air conditioned. The looping department is separated from the knitting room, and up-to-date methods are used in conjunction with the modern equipment to produce top-quality hosiery.

The Scott & William Model K and KN machines are laid out in sets of 30 machines, and 60 machines are driven from one 7½-hp. motor through a silent chain drive. Machines number more than 800, and additional equipment will be installed until 1,000 machines are in place.

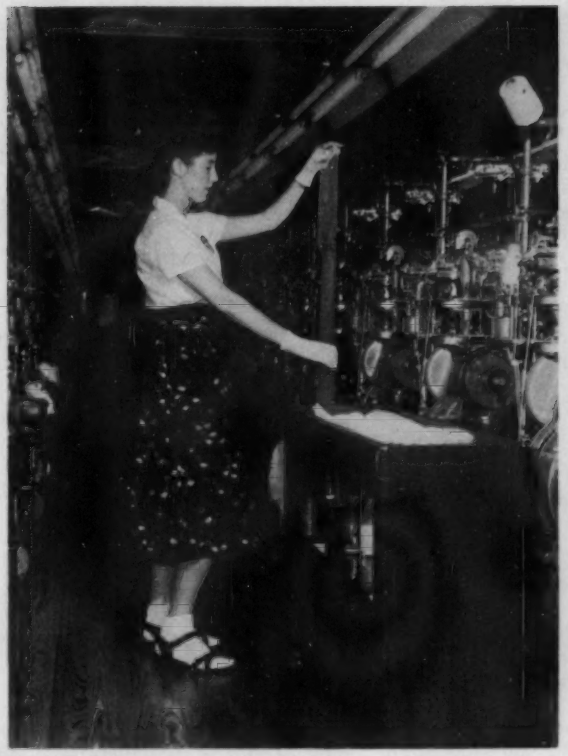
Platforms Are in Sections

Hardwood platforms run down each aisle of knitting machines to provide easy access to the machines. The platforms are built in 10-ft. sections so they can be moved to allow machines to be taken to the maintenance section for major repair jobs.

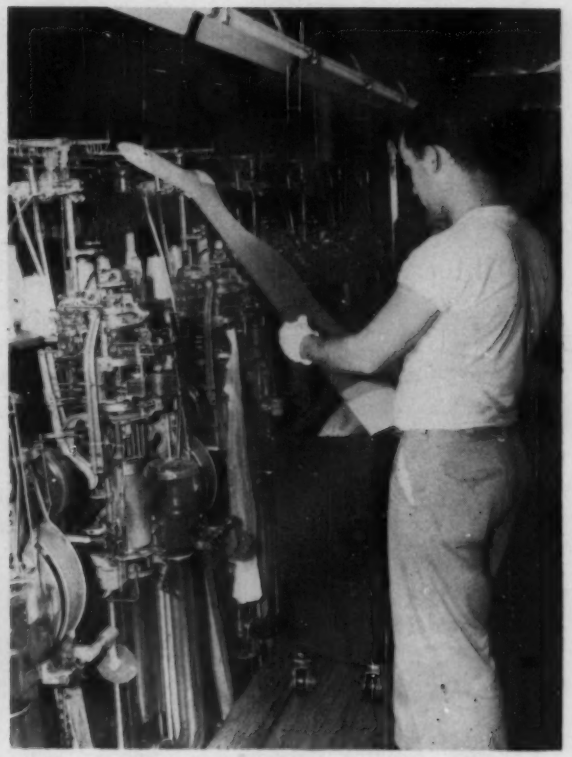
Electric conduits and air-pressure lines run over the lineshafts behind the machines. Each machine stands on an oil pan, which is cleaned each day by the janitor.

The machine legs are placed on pads so that oil can be cleaned from under the tension units. Two men constantly travel around the knitting machines cleaning the machine frames to keep excess oil off the stockings and improve the appearance of the knitting area.

A row of double-tube lights is suspended about 2 ft. over each line of knitting machines to give ample light



STOCKINGS are inspected by the knitter on a form attached to the work table, which is pushed along the hardwood platform.



LENGTH CONTROL is done by mechanics who constantly patrol the machines and check each stocking on a sizing form.

where it is needed. Fixers' benches are being installed at the ends of alternate aisles.

These benches also provide storage for unlooped hosiery and knitters' and fixers' personal belongings. An open shelf, easily accessible to the knitter, holds a cloth-covered handling tray for hosiery just knitted.

The cupboard below the shelf contains trays partially filled on the previous shifts. The top part of the bench is covered with soft material to prevent picks and pulls.

Knitters' Tables Are Mobile

Each knitter is provided with a cloth-covered table on casters. Rails on the platform keep the table from touching the machines. An inspecting form is attached to the end of the table.

As the knitter removes a stocking from the machine, she draws it on the inspecting form and thoroughly examines it all over. If the stocking is faulty, she lays it on a hook on the machine to draw the fixer's attention to check the machine.

Perfect stockings are laid on the table until 1 doz. pairs have accumulated, when they are tied at the welt with a looper clip and laid in the handling tray. If the knitter notices any deviation from the correct length, she calls the fixer who checks the machine setting.

Three men on each shift also keep check on the stocking lengths. Each set of machines runs the same size and style, and each man carries a sizing form as he works down the aisles.

A stocking from each machine is drawn on the marked form and checked for over-all length and for foot length. If either length is out of control, the machine is adjusted immediately.

Finished Stockings Are Checked

Checks are made frequently on finished goods. A laundry label is attached to each stocking of the test set for identification. These stockings are delivered to the quality-control section, and the looper line is checked.

After looping, the stockings are preboarded and checked for length. The finished stockings are again measured and checked for needle streaks and other faults that don't normally show in the undyed stocking.

Each handling tray holds 12 doz. pairs of stockings, and these trays are taken to the unlooped stock room when they are full. The knitter receives credit for each tray, and the trays are stored in mobile racks that hold 12 trays until they are required for looping.

Looping is done on Sotco 38- and 44-point loopers. When each tray of stockings has been looped, they are returned to the stock room, where the tray is exchanged for a fresh tray.

The looping machines all face the same way and are laid out in rows of 16 machines. Each row is split in half so that the motor drives only eight machines to lessen vibration. Lighting fixtures are suspended about 3 ft. directly over the operators' heads to give ideal lighting conditions.

The handling trays are positioned on special stands that hold two trays. The stockings are taken from the bottom tray, looped, and placed on the top tray. The welts are not untied during looping, and no more than 2 doz. stockings are allowed to accumulate on the racks.

A further precaution against pull threads is the generous supply of both hand cream and lotion on the looping benches.

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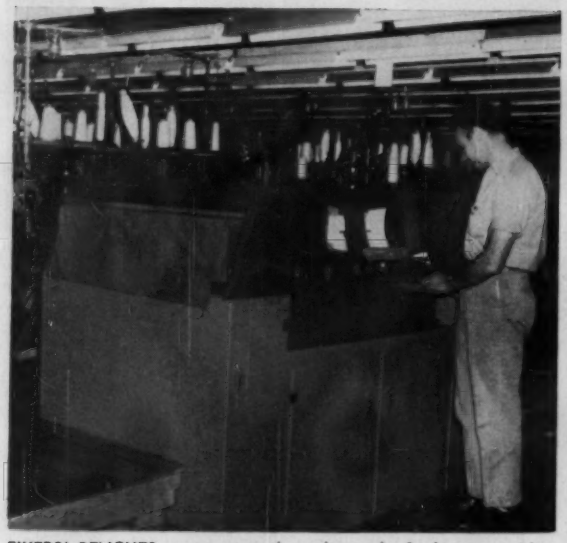


FIXERS' BENCHES are arranged at the end of alternate aisles. Cloth-covered trays are at a convenient place for knitters to lay their work.

LOOPERS are trained by the A. M. system. After a period of dexterity exercises, trainees run coarse-gauge fabric on the looper points.

For efficient and comfortable working positions, the loopers' chairs are designed with a movable back rest, a swinging foot rest, and foam-rubber cushions on the seat and back rest. Adjustable legs allow the chairs to be raised or lowered for the best working position.

A constant training program insures an adequate supply of good looper operators, and about 18 girls are kept in training. The Ladhams A. M. system of looper training is used at Acme, and the training area is partitioned from the main looping section.

Training commences with a series of exercises to improve the operators' dexterity. The operators then move to running on coarse-gauge fabrics on coarse-gauge points and finally to looping the fine-gauge hosiery. The trainees develop charts and graphs of their production, and they learn faster than under the conventional system of training.

After dexterity and eye tests, knitters are given a training period with an experienced knitter for several weeks. Knitting-machine fixers are trained from men who have worked as knitters. Fixer trainees are placed with experienced fixers on various phases of maintenance until they are capable of taking over a set of machines.

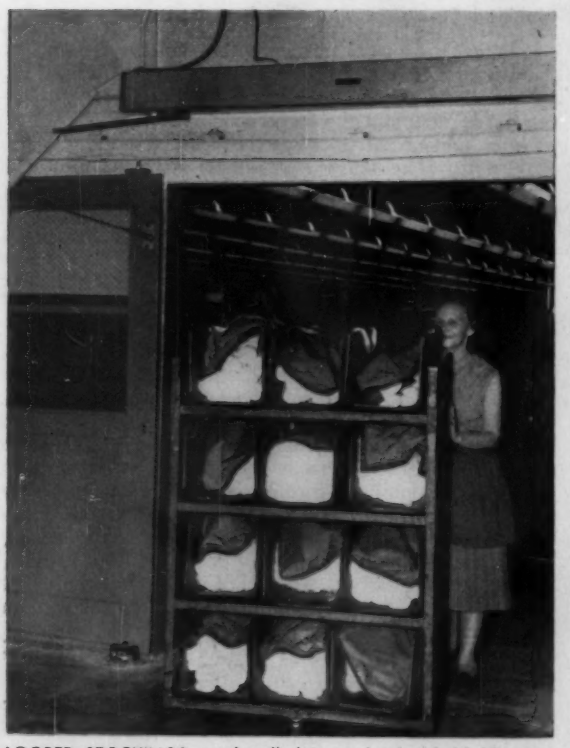
The looping room is kept at a relative humidity of 50% and a temperature of 78° F. The knitting room is kept at the same relative humidity, but the temperature is 80° F.

The air-conditioning system is supplied by chilled water from a 200-ton Trane Centrovac compressor. Two 40-hp. Gardner-Denver compressors supply air to the knitting machines for the take-up attachments. A 125-hp. Cleaver Brooks automatic boiler supplies heat to the plant. These units are housed in separate rooms on the north side of the plant.

The service area that separates the looping area from the knitting area includes a lunch room where operators can smoke or get soft drinks, coffee, and sandwiches from vending machines.

A combined yarn stock room where knitters collect the yarn completes this area. This stock room is kept at the same conditions as the knitting room.

To reduce handling to a minimum, the looped stockings are shipped in the trays on the mobile rack to Acme's main plant to be preboarded, dyed, and finished.



LOOPED STOCKINGS are handled in trucks that hold 12 trays. Electronically controlled doors prevent damage to the work.

How To Improve TRICOTS By Schreiner Calendering

• This new finishing technique for nylon tricot increases fabric opacity and gives a pleasing change in hand to the fabric. Best results are obtained when conditions are 400° F. and 30- to-40-tons pressure is applied.

An interesting new finishing technique has been developed for nylon tricot that consists of passing the fabric through a Schreiner calender. The conditions of temperature and pressure are selected to impart an entirely new character to the fabric. Schreiner calendering has been used successfully in finishing millions of yards of cotton broad woven goods and now promises to have far-reaching effects on tricot.

The process gives a matte or frosty, subdued appearance suggestive of a woven rather than a knitted construction. The high pressure exerted by the calender tends to flatten the individual yarn bundles, thereby reducing the openness of the stitch and at the same time imposing the fine engraved pattern of the steel on the fabric surface. An increase in covering power or fabric opacity as measured by appearance and laboratory tests results. In addition, there is a very marked and pleasing change in hand.

Schreiner calendering was adapted to tricot in Du Pont's Textile Research Laboratory. Commercial acceptance of the process is not an accomplished fact yet.

What Causes the Change

The change in appearance is caused by the light-scattering effect of the engraved pattern on the surface of the fabric. The accompanying condensation of the fabric resulting from the pressure in the calender tends to add further to the covering power.

The hand of the fabric is altered because of the decrease in thickness and the change in surface frictional characteristics. The surface is smoother because the fabric is more compact. This smoothness tends to reduce the sleazy appearance of some fabrics and equalizes the points of contact encountered by a hand touching the fabric.

The factors that contribute to the new handle and appearance are made possible by the thermoplastic nature of nylon. This property permits shaping the fiber and its surface under the calendering conditions of heat and pressure. The effect is not appreciably altered by home laundering.

How To Produce the Effect

Tricot fabrics can be Schreiner-calendered at any stage of processing, with varying effects. If the goods are calendered in the gray, there is a reduction in streakiness caused by uneven spacing of the yarns. The stitch is mechanically flattened, and the yarn contracts, which minimizes irregularities. If the fabric has been scoured before calendering, the yarn has already been shrunk.

Scoured goods therefore are subject only to the closing of the stitches and the pattern impressed by the engraved roll.

Subsequent heat-setting insures the durability of the calendered effect, produces dimensional stability, and releases stresses created during calendering.

The hand produced by calendering before heat-setting or dyeing is full and pleasing.

Tricot that has been dyed and finished by the usual methods and then Schreiner-calendered has a firmer hand and less-durable effect because the fabric has already been heat-set before calendering.

Fabric construction and yarn type play a large part in obtaining the optimum results from Schreiner calendering. Laboratory work so far shows that dull yarns and an initial good covering power contribute to best results.

How the Calendering Is Done

The Schreiner calender is set to develop 30 to 40 tons pressure and is heated to 380 to 400° F. The fabric is passed through under these conditions at a speed of 13 to 20 yds. per min.

Tests made at various pressures and temperatures showed that these conditions gave the best results.

Other tests at various temperatures and pressures showed that when pressure is held at 30 tons and temperature varied from 100° F. to 400° F., transmitted light decreased from 11.5% at 100° F. to 5.6% at 400° F.

A similar increase in light reflectance occurred when the fabric was calendered at 400° F. Both the lowered light transmission and increased light reflectance contribute to the better cover of the calendered fabric.

Roll temperature also has an effect on fabric thickness and hand. Goods calendered at low temperatures decreased slightly in thickness—from 12 to 10.5 mils—but did not retain this change after boiling off.

If they were calendered at 400° F., thickness decreased to 8.5 mils and remained at 9.5 mils after boiling off.

There is generally more fabric shrinkage at high temperatures, and tension at the calender increases shrinkage even at the lower temperatures.

When the roll pressure is varied from 10 to 45 tons, there is less difference in the apparent effect than there is when temperatures are varied from 100 to 400° F.

Optimum conditions of 400° F. and 30- to 40-tons pressure applied to the fabric before heat-setting produce the best all-around results in hand, covering power, and durability to laundering.

From a paper presented by Graham M. Richardson before AATT

GENERAL KNITTING MILLS, Inc.

Date October 3, 1956

SHIPPING ORDER

Our Order No 1781

Customer Order # 5831

CUSTOMER: John Doe Knitting Corporation

SHIP TO: North Carolina Finishing Co. VIA: General Truck
Waxhaw, North Carolina

PLEASE SHIP FOLLOWING TO: John Doe Kty. Co FOR ACCT. OF: John Doe

ADDRESS: 2733 East End Ave, New York City, N.Y. VIA: Akers
32 St

STYLE K 2832 YARN 28/1 KP COLOR

MACH. SIZE	13	14	15	16				
FINISH SIZE	30"	32"	34"	36"				
LBS. TO SHIP	1000	1000	1000	1000				Bleach
NO. ROLLS NECC.	29	29	29	29				

SPECIAL INSTRUCTIONS:

DYE HOUSE INFORMATION

MINIMUM LBS Return Stamps

MAXIMUM LBS

SHIP: 116 Rolls

☐ WHEN COMPLETE
☒ AS READY
☐ HOLD FOR SPECIAL INSTRUCTIONS

Pack in Cartons.

Notify Customer via postcard when shipped.

ORDER FORM is copied from the original order in triplicate. One copy is returned for confirmation, one copy is used for shipping, and the master knitting ticket is made from the original.

Knitting ORDER SYSTEM Keeps Mill Running Smoothly

A knitting order system operating at General Knitting Mills keeps the production of jersey, rib, and fancy fabrics at high efficiency. Three types of forms are used to run the simple system. They are—

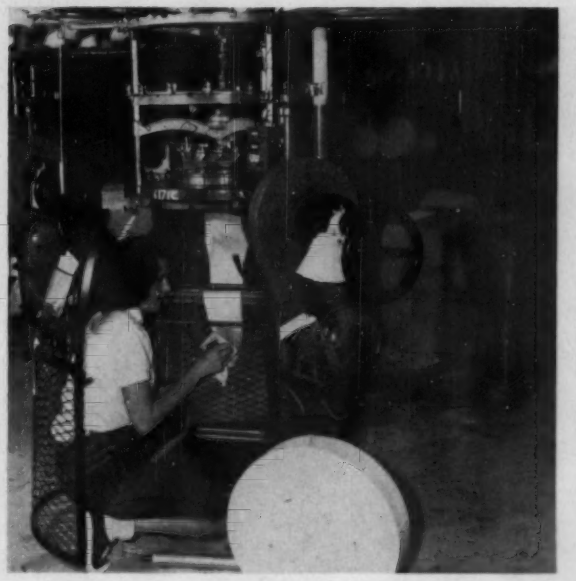
- **Original order form**
- **Master knitting ticket**
- **Fabric piece tickets**

General Knitting Mills, Inc., knits many types of underwear and outerwear fabrics. Modern equipment and methods at its new plant [Textile World, Jan., '57, p. 108] in Monroe, N. C., are supplemented by an order organization that is simple yet highly efficient. General knits fabrics from a wide variety of yarns for widely scattered customers, yet few errors are experienced with the order system.

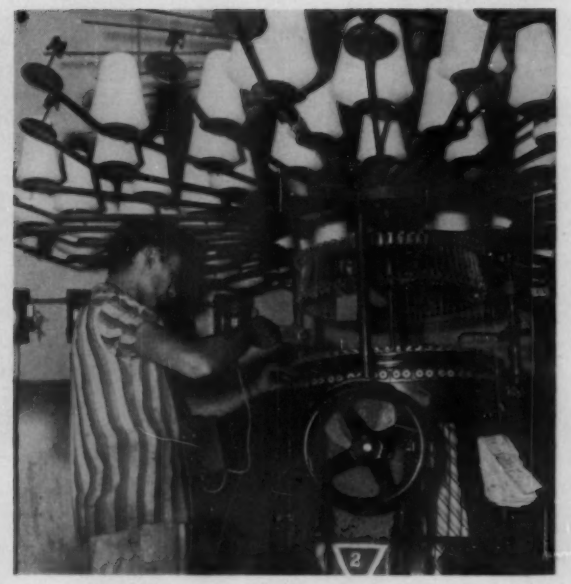
When an order for fabric is received, it is copied on a triplicate order form in the office. One copy of this form goes to the shipping section and one copy goes to the customer for confirmation. The knitting tickets are made from the original order form.

Rolls Are the Same Length

The rolls of cloth are all made the same length for certain styles, and the number of rolls is calculated to make



FABRIC ROLLS are marked with dye-resistant pencil as they are started. The end of the fabric is drawn around the roll to keep it clean, and a knitting ticket is tied to the roll.



YARN-SPEED METER is used to check the stitches per inch shown on the master knitting ticket, which is hung on the front of the machine with the knitting tickets.

one order. A ticket is made out for each roll to be knitted.

These tickets describe the cloth style, type of machine, color, customer, yarn number, and stitches per inch. Each ticket has a different piece number printed on it in red.

A master ticket is made for each order. It shows the style, machine size, cut, yarn, stitch, finished width, number of rolls, and number of pounds required. This master ticket, along with the required number of piece tickets, is hung in a prominent position on the front of the machine.

Each machine is equipped with a Veeder-Root counter, and the counter is set to the length of the roll. The length of the roll is calculated in counter revolutions. When the operator goes off the shift, the required number of revolutions is marked on each ticket to show the next operator when to doff the roll.

At each shift change, a bell rings to signal the knitters returning to work to start their duties. A second ring, 5 mins. later, signals the other knitters to leave their work. This system makes sure that machines do not run unattended.

Rolls Are Marked

As each roll is started on the machine, it is marked with dye-resistant pencil by the knitter. A piece ticket is then tied to the end of the newly finished roll, which is left in the center alley to be carried away in trucks to the shipping room.

The number of tickets remaining on each machine is checked each day, and a record showing the orders on hand for each machine is kept up to date in the office. Orders on machines

CONTINUED ON PAGE 250

5831

ORDER # 1781

FIN. 36"

COLOR Bleach

GENERAL KNITTING MILLS, INC.

MASTER KNITTING TICKET

CUST: John Doe

STYLE: K 2832

MACH: 16 CUT 22

YARN: 28/1 KP

STITCH 32

29 ROLLS @ 35 LBS. EACH

TOTAL LBS. REQ. 1000

DESCRIPTION:

MASTER KNITTING TICKET shows the style, machine size, cut, yarn, number of pounds of fabric required for the order, number of rolls required, and stitches per inch.

ORDER NO. 1781 5831

General Knitting Mills, Inc.
MONROE, N. C.

Customer: John Doe

Piece No: 22528

STYLE K 2832 | STITCH 32

CYL. 16 Cut 22 | MACH. #

FIN. WIDTH 36" | COLOR Bleach

GREIGE WEIGHT

LBS. | TENTHS

YARN COUNT 28/1 KP | SPINNING

Fin. Wt. | Yards

BROKEN NEEDLES | BREAKS | SLUBS

KNITTER 1 | KNITTER 2 | KNITTER 3

KNITTING TICKET is made from the master ticket, and as many tickets are made out as there are rolls of fabric. Each knitting ticket has a different number.

STOCKINGS are laid on a plastic plate and held by a strip while the yarn is unraveled from the toe.

How Liberty's Laboratory Helps FULL-FASHIONED KNITTING

Two problems are tackled successfully in the laboratory of this North Carolina hosiery mill to keep quality up to standard—

- **Stockings are unraveled to check on weights of each yarn going into the stockings**
- **Trough solutions are deionized and constantly checked to reduce damage to needles, sinkers, and dividers**

Liberty Hosiery Mills, Inc., makes full use of its compact laboratory, which adjoins the full-fashioned knitting room at the Liberty, N. C., plant. Stockings are unraveled for quality-control tests, yarn is tested for size content and weight, and water is specially treated for trough solutions.

One experienced laboratory worker concentrates on these jobs and can do them in a short space of time. The equipment in the laboratory includes a special unraveling device, an Illco deionizer, direct-denier scale, tension balance, and conditioning oven.

Two stockings from each machine are unraveled every week. A stocking is laid over a plastic plate screwed to the work bench in the laboratory. A blue plastic strip is screwed to the plastic plate and held by two butterfly nuts.

The stocking is clamped under the blue strip with the toe facing the operator. She starts unraveling the yarn from the toe and gathers one yarn in each hand. In unraveling the foot and heel splicings, she holds the main yarn and the left splicing yarn in her left hand and the right splicing yarn in her right hand.

As the various yarns are unraveled, they are placed in small canvas bags, which are sealed with pins numbered to signify the part of the stocking the yarn came from. The boot part of the stocking is cut out, and the welt part is unraveled.

The canvas bags are then boiled for 10 mins. to eliminate the size and oil content. The bags are then placed in an oven for 1 hr. to completely dry out. Each yarn is then removed from the bag and weighed to the nearest grain on a tension balance. The results are entered on a chart. Weights that are off standard are reported to the foreman in the knitting room.

The first check on the knitting machine is the course counter, which is operated from the oscillating shaft. The total number of courses in the stocking is checked. If this check proves OK, a Rolande test is made; and the machine is adjusted if this test shows tight or loose stitches.

UNRAVELED YARNS are separated, placed in canvas bags, and boiled. The yarns are then dried and weighed.

WATER for trough solutions passes through this deionizer to eliminate all solid matter. Samples are tested daily.

Stockings from each head are also tested on the Rolande tester twice weekly. A cold-board test is given to stockings from each head twice weekly to keep stocking lengths within a 1-in. tolerance,

When yarn faults are suspected, the unraveled yarn is checked for size and oil content by weighing the yarn before it is boiled and weighing it again after the boiling. The yarn denier is rapidly checked by winding 225 meters of yarn from a package and weighing it on a direct-denier scale.

All water for trough solutions at Liberty is treated to remove all solid matter. This treatment eliminates impurities that damage the needles and sinkers.

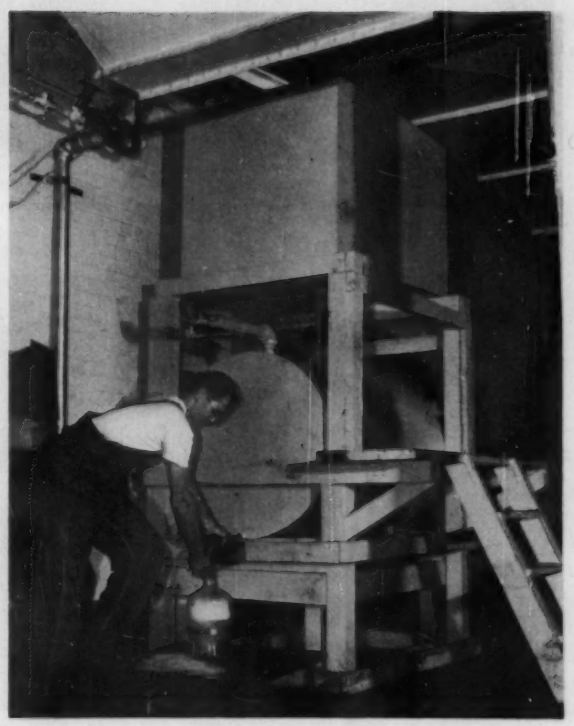
Water from the city supply is run through an Illco-Way deionizer, which keeps solids down to zero parts per million. A purity meter is used each day on a sample of the water.

The deionizer is cleaned each day with sodium hydroxide and hydrochloric acid. These chemicals are contained in a tank fixed over the deionizer.

Purified water from the system runs into a 300-gal. square tank in the knitting room. This tank has a float valve to keep the tank full and shut off the supply.

When the solution tank under the pure-water container is empty, a valve is opened and the solution tank filled with water. Chemicals are added to make up the trough solution by the foreman, and the solution is mixed with compressed air. Water jars are then filled from this tank.

Treating water for trough solutions in this way keeps Liberty's needles, sinkers, and dividers from accumulating hard deposits that tend to make seconds and poor-quality hosiery. Unraveling hosiery helps to keep a close check on costs, in addition to providing customers with a quality-controlled product.



TREATED WATER is led to the 300-gal. square tank above the trough-solution tank in the knitting room.

Conveyor Systems Improve HOSIERY PRODUCTION

• At Bear Brand Hosiery Co. six girls do all operations from transferring to boxing on 2,450 doz. pairs of socks each day. Stretch socks are processed on another conveyor system at the rate of 1,700 doz. pairs per day.

CONVEYOR SYSTEMS in the finishing room at Bear Brand Hosiery Co., Kankakee, Ill., are helping to speed the final operations in the production of socks. Three conveyor lines, installed by Paramount Textile Machine Co., work side by side with all goods traveling in the same direction. One system is adapted to run stretch socks.

This conveyor line handles 1,700 doz. pairs of stretch socks per 8-hr. shift. The goods arrive at the conveyor line in assorted lots that have been drawn on cardboard shapes and transferred with various marks to coincide with the assortment of color and style. Socks are folded, labeled, banded, and boxed on the line.

The assorted socks are placed in 6-doz.-pair lots on boards in a staggered formation for easy handling. About 10 stacks of boards are placed nine deep on a feed conveyor with the sock tops facing the first operator.

This operator brings a new stack of boards to working position by touching a foot starter switch. She withdraws each dozen pairs of socks and places them on the bridge of a Paramark machine, which is part of the conveyor system. The empty boards fall into a truck at the end of the feed conveyor.

STRETCH SOCKS are laid on a conveyor band and fed between guide rods that fold the socks on the cardboard shapes and raise them for rider-ticket application.

TURNTABLE assists operator to reach socks easier for applying pin tickets. Ticketed goods travel down the conveyor to the Paramark machine for finishing.

Machine Folds Socks

The operator places each pair of socks on the conveyor band on the Paramark machine that is set to run 52 pairs of socks per minute. All socks pass under a wheel that automatically passes them under a guide rod. This guide rod turns the boarded socks over at the center, and a second wheel pushes them down and folds them flat.

The socks are then fed to a device with moving bands that turn the socks to a vertical position for easy placement of rider tickets. Two girls place rider tickets on alternate pairs of socks as they pass by. A special gummed stock is used for the rider tickets to keep the folded boards springing open.

As the socks move toward the end of the conveyor, the bands that support the socks turn them to a horizontal position and spill them on a third conveyor where five girls are sta-

tioned. One girl takes the socks off the conveyor and feeds them in lots of six pairs to the other four girls, who place a band around each lot and join the band with adhesive tape supplied from a dispenser.

A wooden jig is used to assist the operators in this job. The band is laid on the jig, and the socks are laid on the band while the ends of the band are sealed. The banded socks are laid on the conveyor, and they travel to the end where a girl stands and gathers them in 1-doz.-pair lots and places them in boxes. After the boxes are tied with string on a Saxmeyer bundle tyer, they are placed in a truck ready for shipping.

The center section of the machine, devoted to the folding of the stretch socks, is on casters and is removed when nonstretch goods are run.

SIX GIRLS on one conveyor line process 2,450 doz. pairs of socks each 8-hr. day. Operations include transferring, banding, labeling, and boxing.

Six Girls Do 2,450 Doz. Pairs

The latest conveyor line uses six girls who process 2,450 doz. pairs of socks or anklets per 8-hr. day. One transfer is fixed to each sock, rider tickets are attached, a band is placed around each ¼ doz. pairs, and the socks are put in boxes.

Socks come from the pairing section on boards, which are stacked on a 10-ft. automatic conveyor by the stock man. Each board holds 9 or 15 doz. pairs of socks, laid out in 1-doz.-pair lots. This conveyor is controlled from a foot pedal by a girl who operates the pin-ticket machine.

The pin-ticket machine is placed in front of a turntable at the end of the 10-ft. conveyor. Socks that roll across the turntable are not pin-ticketed. Other socks remain on the turntable, and each dozen is lifted from the turntable as it is rotated. A supply of work is retained on the 20-ft. conveyor that transports goods from the turntable to the main conveyor system.

A Paramark Model-12 transfer machine is the first unit in this system. A girl stands at the head of the machine and lifts each 1-doz.-pair stack of socks from the conveyor and places them on the bridge. The empty boards are placed in a truck at the end of the feed conveyor line.

Transfers are applied from a roll under the Paramark machine. The transfers pass over the top of the table and are drawn back under the table and wound up on a second roll.

SOCKS are fed, 70 pairs per min., to a Paramark machine that runs transfers from the roll under the machine. The wheel presses the socks down on the transfers.

Girl Feeds 70 Pairs per Minute

The feed girl places each sock on the conveyor band over a transfer. She feeds up to 70 pairs of socks per minute to the band. A weighted roll presses each pair down on a hot element heated to 370° F. When no socks are placed on the transfer, a feeler device drops the iron so that it doesn't contact the transfer.

Transferred socks are dropped on a continuous-driven conveyor that runs at the same speed as the Paramark machine. Two girls working by this conveyor apply rider tickets as the socks pass by. Each girl works on a bridge over the conveyor and tickets alternate pairs of socks.

Further down the conveyor, two more girls lift off the socks in three pairs and place them on a stainless-steel table to be wrapped with a band. Each girl has a tape dispenser with 1-in. tape. This tape is split in half, and a small piece is fed to join the two bands.

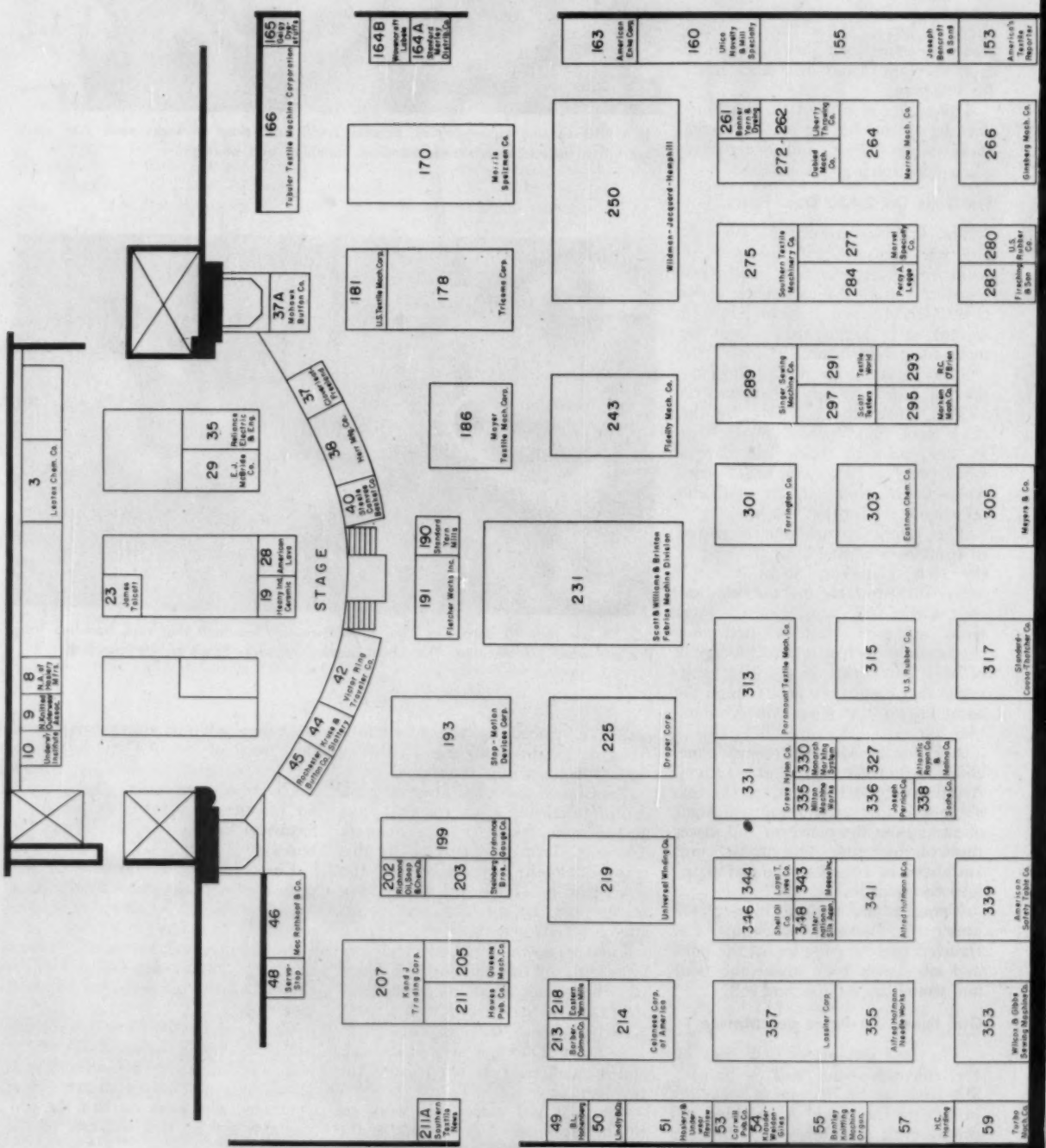
The last girl places her work on top of the previous girl's work so the socks arrive at the end of the conveyor in a pile containing two lots of three pairs of socks. These two packages are placed in an open box as they reach the final operator, who places a lid on the box, ties the box on a Saxmeyer bundle tyer, and places the boxes on a truck.

Empty boxes are conveniently laid open for the last operator by the stock man, and the lids are nested on a separate pile. Transfers are located at the Paramark machine, and as each roll of transfers is used a new roll is fixed to the end of the old roll with adhesive tape.

Operators do the same job all day but have a break in the middle of the morning and in the afternoon. Pay is based on a unit rate with the center operators, who work on half the production, getting half the rate of the others.

Knitting Arts Exhibition

Atlantic City, N.J., April 29 – May 3, 1957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EXHIBITION AREA

1957 KNITTING ARTS EXHIBITION

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B. Knitting Machinery (See page 152)

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K. Industrial Equipment and Supplies (See page 154)

L. Services, Associations, and Publications (See page 155)

A. Yarn-Preparation Machinery

EXHIBITOR	PRODUCT	BOOTH NO.
Barber-Colman Co	Reception booth	213
Cocker Machine & Foundry Co.	Tricot warper	88
Fletcher Works, Inc	Doubler-Twister, Winder-Redraw	191
Foster Machine Co	Cone winder	82
Industrial Dryer Corp	Yarn conditioner	151
Kidde Mfg. Co., Inc	Tricot warper	489
Reiner, Inc., Robert	Sectional warper	69
Tricoma, Inc	Cone winder	178
U. S. Textile Machine Co	Reception booth	181
Universal Winding Co.	Reception booth	219

B. Knitting Machinery

EXHIBITOR	PRODUCT	BOOTH NO.
Bentley Knitting Machinery Org., Inc	Reception Booth	55
Brinton Fabrics Machine Div., Scott & Williams, Inc	Circular underwear & outerwear	231
Crawford Co., Inc., H. E.	Circular pattern hosiery	85
Draper Corp	Reception booth	225
Dubied Machinery Co.	Flat, hand-knitting	272
Edley Machine Co	Circular half-hose	470
Fidelity Machine Co	Circular ladies'-seamless hosiery, infants', children's hosiery	243
Hemphill Co., Subdivision, Draper Corp.	Circular hosiery	250
K & J Trading Corp	Circular underwear & outerwear	207
Kidde Mfg. Co	Warp, flat	489
Knitting Machine & Supply Co.	Flat, border	80
La Mode Hosiery Co.	Circular ladies'-seamless hosiery	439
Lieberknecht, Inc., Karl	Reception booth	391
Mayer Textile Machinery Corp.	Warp, flat	186
Ordnance Gauge Co	Circular underwear & outerwear	199
Queens Machine Co	Flat	205
Reiner, Inc., Robert	Flat rib	69
Rothkopf & Co., Mac M	Flat, border, hand-knitting	46
Scott & Williams, Inc	Circular underwear, outerwear, & hosiery	231
Servo-Stop	Flat, border	48
Speizman Co., Inc., Morris	Circular ladies' hosiery	170
Staroba Industrial Research Co	Circular ladies'-seamless hosiery, knee-high seamless hose	379
Steinberg Brothers	Flat	203
Supreme Knitting Machine Co.	Circular underwear & outerwear	451
Textile Machine Works	Circular hosiery and reception booth	510&517
Tompkins Bros. Co.	Circular underwear & outerwear	450
Tricoma, Inc.	Flat, circular hosiery	178
United States Hosiery Corp.	Circular ladies'-seamless hosiery	482
Whitin Machine Works	Reception booth	425
Wildman Jacquard Co. Subdivision, Draper Corp.	Circular underwear, outerwear & F.F. sweaters, sleeves	250

C. Specialized Knitting-Mill Accessories and Supplies (See also Dyes, Chemicals, & Finishes)

EXHIBITOR	PRODUCT	BOOTH NO.
Allentown Bobbin Works, Inc.	Bobbins, spools	150
American Lava Corp	Thread guides	28
Cloverleaf-Freeland Corp.	Bobbins, take-up shafts	37
Crawford Co., Inc., H. E.	Machine parts, attachments	85
Eberly, Inc., John A	Needles, sinkers, sliders, guides	538
Emsig Mfg. Co.	Buttons	102
Engineered Plastics, Inc	Bobbins, spools, adapters, tubes	63
Feustal, Ernest A	Tubes, guides, sinkers, dividers	501
Harding, Inc., H. C.	Machine oils, solvents, cleaners	57
Hayes Industries	Tricot beams	611
Heany Industrial Ceramic Corp.	Ceramic thread guides	19
Herr Mfg. Co	Rings, flyers	38
Hofmann Needle Works, Inc., Alfred	Reception booth	355
Ives Co., Inc., Loyal T.	Sinkers, jacks, spring-beard needles, guides, machine parts	344
Kidde Mfg. Co., Inc	Compensating tensions	489
Kruse & Slattery, Inc.	F.F. machine supplies	44
Laconia-Cooper Co., Inc	Latch, spring-beard needles	455
McBride Co., Inc., Edward J.	Creels, stop motions	29
Meese, Inc	Canvas hampers, baskets	343
Milton Machine Works, Inc	Tricot beams	335
Mohawk Button Co	Plastic buttons, feeder	37A
Rochester Button Co	Buttons, feeder	45
Rothkopf & Co., Mac M	Mill supplies	46
Royersford Needle Works, Inc	Machine parts, needles	461
Scovill Mfg. Co.	Fasteners	436
Shell Oil Co.	Machine oils	346
Sonoco Products Co.	Cones, tubes, spools, cores, rings, pirns, cots, roll covering	507
Steel Heddle Mfg. Co.	Throwing bobbins	553
Steele Canvas Basket Co., Inc.	Baskets, trucks, hampers	40
Sterling Engineering & Mfg. Co.	Bobbin & quill boards, yarn trucks	149
Stop-Motion Devices Corp.	Stop motions, tension assemblies, detectors	193
Synthane Corp	Laminated plastic products	372
Textile Machine Works	Latch, spring-beard needles	510
Torrington Co	Knitting needles	301
Victor Ring Traveler Co.	Reception booth	42

D. Dyes, Chemicals, and Finishes

EXHIBITOR	PRODUCT	BOOTH NO.
American Aniline & Extract Co.	Chemical specialties	390
Banner Yarn & Dyeing Corp.	Special finishes	261
Fancourt Co., W. F.	Finishes for nylon F.F. and circular hosiery	515
Geigy Dyestuffs	Mothproofing	165
Indian Orchard Finishing Co.	Special finishes	116
Laurel Soap Mfg. Co., Inc.	Soaps, oils, finishes	547
Leatex Chemical Co	Scouring, dyeing, and finishing materials, trough solutions, lubricants	3
Richmond Oil, Soap & Chemical Co., Inc.	Chemical finishes, specialties	202
Scholler Brothers, Inc.	Hosiery finishes for conventional and stretch stockings, and knit goods	463

EXHIBITOR	PRODUCT	BOOTH NO.
E. Yarns, Threads, and Fabrics		
Aberfoyle Mfg. Co.	Special-process knitting and weaving yarn, Durene, spun Dacron and Egyptian cotton, spun Orlon, spun Dacron, spun nylon	411
Adelaide Mills	Cotton yarns	140
American & Efird Mills, Inc.	Carded, combed, Durene mercerized, Orlon-cotton yarns, wool chenille dress, worsted-jersey dress, 80-20 Orlon-wool jersey dress; fabrics of cotton, Acrilan, Orlon, Orlon-wool, Acrilan-wool, tricot, Ban-Lon; industrial sewing threads	387
American Enka Corp	Nylon, rayon textile and industrial yarns	163
American Thread Co	Cotton, synthetics yarns, threads	403
American Viscose Corp	Filatex yarns, Colorspun yarn and staple, knitted fabrics	409
Atlantic Rayon Corp	Dyed nylon yarns in producer's twist and thrown; dyed rayon yarns in skein, cake, cone and tube put-ups; dyed stretch-nylon yarn on cones and headless packages; dyed combination yarns	327
Bancroft & Sons Co., Joseph	Special-type yarns	155
Bertner Co., Sidney	Natural, synthetics yarns	610
Boger & Crawford	Cotton, synthetics, and blended fabrics	530
Brant Yarns, Inc	Novelty yarns	140
Cannon Mills, Inc	Combed and carded, natural and dyed, blended-fiber yarns and fabrics	505
Carbide & Carbon Chemicals Co. Textile Fiber Div.	Knitted fur-like Dynel and Dynel-Orlon fabrics, cotton-Dynel knitted underwear, Dynel Type 63 sleepwear, knitted industrial fabrics	434
Caron Spinning Co	Orlon and blended yarns, special yarns for bulky knits, Shetland, alpaca, mohair and cashmere, Ban-Lon yarns	422
Celanese Corp. of America	Knitted fabrics, garments	214
Chemspun Yarns Ltd	Synthetics yarn	218
Chemstrand Corp	Acrilan and nylon yarns in coatings, sweaters, sleepwear, knitted fleeces and pile fabrics; Acrilan carpets and blankets; Chem-nyle process for dyeing nylon	66
Comer-Avondale Mills, Inc.	Cotton knitting yarns and garments, specialty yarn for outerwear	375
Continental Can Co., Inc. Shellmar-Betner Div.	Metallic yarns	389
Cotton Yarns, Inc	Combed, mercerized, carded, dyed and bleached for knitting and weaving; sewing threads; cotton-Orlon, cotton-nylon, cotton-acetate, cotton-Acrilan blends	145
Cross Cotton Mills Co	Reception booth	543
Deering, Milliken & Co., Inc.	Agilon stretch yarn, Agilon textured yarn, Agilon bulk yarn	421
Dixie Mercerizing Co	Knitting yarns, fabrics	527
Dobeckmun Co	Metallic yarns	136
Du Pont de Nemours & Co., Inc., E. I.	Synthetics yarns, fabrics, garments,	109
Eastern Yarn Mills	Novelty yarns	218
Eastman Chemical Products, Inc	Verel, acetate yarns, fabrics	303
Etherington Brothers	Reception booth	433
Ewing-Thomas Corp	Combed, carded mercerized yarns for knitting, weaving; natural, dyed, bleached, gassed	114
Fitchburg Spinners Sales Corp.	Reception booth	143
Franklin Process Co	Packaged-dyed yarns including cotton, Orlon, Helanca, nylon, rayon, and Dacron, package-dyed high-bulk Orlon, dyed Orlon tow	444
Globe Dye Works Co.	Package-dyed cotton, worsted, zephyr, synthetics and blend yarns, package-dyed Turbo and high-bulk Orlon and Acrilan	377
Grove Nylon Co	Thrown yarns	331
Harriet-Henderson Cotton Mills	Reception booth	117
Hess, Goldsmith & Co., Inc. Atwater Div.	Ban-lon, Taslan, Fluflon and other bulked and stretch-type continuous-filament yarns, thrown, warped yarns, Helanca SW yarns	75
Hoffner Rayon Co	Filament and spun synthetics yarns, dyed and thrown	456
Hohenberg Co., Inc	Woolen-system yarns including silk and silk blends, Shetland and Shetland blends, wool-fur blends, cashmere and blends, wool-Orlon, wool-Dacron, wool-nylon, cashmere-nylon, cashmere-Dacron, cashmere-Orlon; worsted yarns of alpaca, zephyr, novelty twist yarns	49
Hooker & Sanders Corp	Cotton yarns	395
Interstate Yarn Mills, Inc	Novelty twist yarns, natural and synthetics	431
Johnston Mills Co	Combed, carded, Durene yarns, natural, bleached, and dyed	540
Jordan Mills, Inc	Garments of Orlon and Orlon blends, Acrilan and Acrilan blends	120
Kahn & Feldman, Inc	Nylon yarns	419
Keystone Dyeng Co., Inc.	Dyed synthetics piece goods, F. F. sweaters	504
Klumpp Co., Joseph	Carded, combed, Durene cotton and combination novelty twists, decoration and specialty yarns	503
Latta, Currier Co., Inc.	Combed, carded yarns, Ban-Lon, Helanca SW sweater yarns, high-bulk Orlon, spun nylon, bulkies and textured garments	74
Legge, Percy A.	Bradford yarns, French spun worsted, fine specialty and merino yarns, bare cut and extruded rubber thread, covered-rubber thread, spun synthetics yarns	284
Leon-Ferenbach, Inc.	Nylon, silk, rayon yarns, Helanca, Agilon and bulked yarns, modified continuous yarns	381
Liberty Throwing Co	Thrown yarns	262
Malina Co	Rayon, nylon, acetate, and metallic yarns	327
Masurel Mills	Spun yarns from natural, synthetic fibers, straight and blended; Turbo-processed yarns, natural and tow dyed; textured filament yarns; novelty twisted yarns	502
Metlon Corp	Metallic yarns	437
Meyers & Co., Clarence L.	Cotton yarns, textured nylon and Dacron yarns, trim yarns, silk and mercerized lisle combinations	305
Muller & Co., L. P.	Reception booth	466
Narrow Fabric Co	Elastic, trimmings, laces	401
O'Brien, Richard C.	Woolen, worsted, synthetics and blended yarns, garments	293
Robison Rayon Co	Cake-dyed rayon, package-dyed boucle, chenille yarns, novelty yarns, decorations	509
Sachs Co	Warp-knit trimmings, fabrics	338
Sauquoit Silk Co., Inc	Thrown yarns	382
Sellers Mfg. Co	Dyed cotton, dyed Turbo-process high-bulk Orlon, 100% and stretch combinations, garments	104
Standard-Coosa-Thatcher Co.	Durene yarns, industrial threads	317
Standard Yarn Mills	Metallic yarns, fabrics	190
Synthetic Yarns, Inc	Thrown yarns, Helanca-type nylon, and Dacron yarn	327
Tannenbaum & Co., Irving	Sewing, separating, quilting thread; thrown and raw yarns	554
Textiles, Inc	Knitting yarns	367
Threads, Inc	Threads	64
United Elastic Corp	Elastic webbing, braid	90
Universal Winding Co.	Stretch and bulk yarns, fabrics	219

INDEX TO PRODUCTS EXHIBITED AT KNITTING ARTS EXHIBITION (Continued)

EXHIBITOR	PRODUCT	BOOTH NO.
U. S. Rubber Co. Lastex Yarns & Rubber Threads Div.	Elastic yarns, extruded rubber thread, cut rubber thread and tape	315
U. S. Rubber Co. Textile Div.	Knitting yarns	280
Valdese Mfg. Co.	Bleached, dyed yarns	545

F. Dyeing and Finishing Machinery and Equipment

American Safety Table Co., Inc.	Collar, cuff, and flap-forming and pressing machine, finishing tables	339
Cosa Corp.	Drying, shearing machinery	499
Cummings-Landau Laundry Mach. Co., Inc.	Washer, extractor, dryer	107
Fletcher Works, Inc.	Extractor	191
Garment Finishing Equipment Corp.	Sweater finisher	133
Henrici Laundry Machinery Co.	Washers	41
Hofmann & Co., Alfred.	Model tenter frame, guiders, selvage feelers, selvage uncurlers	341
Klauder-Weldon-Giles Machine Co.	Paddle-wheel dyeing machine	54
New York Pressing Machinery Corp.	Drying, blocking, pressing machinery	423
Paramount Textile Mach. Co.	Boarding machinery	313
Pernick Co., Inc., Joseph.	Knit-goods finishing equipment	336
Philadelphia Metal Drying Form, Inc.	Boarding machinery and supplies	374
Proctor & Schwartz, Inc.	Model bleaching, dyeing, drying, finishing machinery, Redman Process	557
Reiner, Inc., Robert	Model tenter frame	69
Rothkopf & Co., Mac M.	Sweater looper	46
Smith, Drum & Co.	Package, paddle, rotary, skein dyeing machinery	129
Southern Textile Mach. Co.	Loopers and accessories, hosiery-inspection equipment	275
Specialty Mfrs. & Sales Co.	Inspection form, hosiery turner, boarding machinery, automatic cuffer	560
Speizman Co., Inc., Morris.	Boarding machinery	170
Tubular Textile Machinery Corp.	Finishing machinery for circular knitted fabrics	166
Turbo Machine Co.	Reception booth	59
U. S. Hoffman Mach. Corp.	Finishing board, press	441

G. Packaging Equipment, Materials, and Supplies

Amsco Packaging Mach., Inc.	Sealer-labeler machine, rotary bag-sealing machines	121
Bemis Bro. Bag Co.	Polyethylene bags, baler-loader unit	142
Conapac Corp.	Packaging machinery, bag-making equipment	601
Dobeckmun Co.	Packaging materials	136
Edley Machine Co.	Hosiery-packaging equipment	470
Errich International	Bag packager	552
Everett Sales & Equipment Corp.	Packaging supplies	449
Hayssen Mfg. Co.	Hosiery-wrapping machine	555
J & H Label Processing Corp.	Garment-labeling machine	385
Kaumagraph Co.	Transfers, wraps, bands, tissues, riders, labels, seals, folding cartons	549
Kimball Co., A.	Marking machine with rewind attachment	399
Lassiter Corp.	Films, wraps, folders, folding boxes, tissues	357
Markem Machine Co.	Box marker, label printer	295
Miller Wrapping & Sealing Mach. Co.	Wrapping machine	121
Monarch Marking System Co.	Marking machinery, tickets, tags, and labels	330
National Bundle Tyer Co.	Tying machinery	384
Paramount Textile Machinery Co.	Dry-transfer-applying machine	313
Rose Patch & Label Co.	Printed labels	443
Simplex Packaging Mach., Inc.	Bag-making machine	121
Soabar Co.	Labeling and marking machinery	82A
Speizman Co., Inc., Morris.	Transfer-applying machine	170
Stampagraph Co., Inc.	Hot-iron transfers, embossed seals, labels, self-adhesive labels	147
Tele-Sonic Corp.	Bag packager	448
Twitchell, Inc., E. W.	Packaging supplies	144
United Shoe Machinery Corp.	Packaging machinery	438
Western Printing Co.	Band packager for stretch socks	386
Wovencraft Labels	Woven labels, trimmings	164B

H. Cutting and Sewing Equipment

American Blind Stitch Mach. Corp.	Sewing machines	600
American Safety Table Co.	Tables, stands	339
Chandler Machine Co.	Button sewers, sample cutters, pinking machine, chain-stitch ribbon machine	542
Crawford Co., Inc., H. E.	Clipping machine	85
Cutting Room Appliances Corp.	Laying-up machines, spreaders, trimmers, cutting tables	492
Firsching & Son, Inc., J. A.	Strip cutting & winding, cuff cutting & folding, laying-up machines	282
Ginsberg Machine Co., Inc.	Ladies'-seamless, half-hose trimmers, electric scissors	266
Marley Distributing Co., Stanford	Pull-thread mending machinery, mending needles, and supplies	164A
Marvel Specialty Co., Inc.	Mending machinery and attachments	277
Merrow Machine Co.	Overedging, overseaming, crochet, and shell-stitch machines	264
Reece Corp.	Button-sewing equipment	427
Singer Sewing Machine Co.	Sewing machinery	289
Steinberg Brothers	Cloth-slitting machine	203
Union Special Machine Co.	Sewing machinery	458
U. S. Blind Stitch Machine Co.	Sewing machinery	564
U. S. Hosiery Corp.	Flatseam and overlock sewing machines	482
Utica Novelty & Mill Specialty Co.	Extractor loader, unloader, lay-up machine, cutting, winding machine, double-cuff cutting and turning machine	160
Willcox & Gibbs Sewing Mach. Co.	Sewing machines for seaming and closing, overedge, flat seamer, plain stitching, zig-zag effects	353

J. Regulating, Controlling, Measuring, and Testing Equipment

Cocker Machine & Foundry Co.	Hosiery-testing instrument	88
Cosa Corp.	Testing equipment	499
Hofmann & Co., Alfred.	Optical testing device	341
Lindly & Co., Inc.	Testing equipment	50
Rothkopf & Co., Inc., Mac M.	Tension meter, stitch gauge	46
Scott Testers, Inc.	Tensile tester, flat-bundle fiber tester, twist counter	297
U. S. Testing Co., Inc.	Pilling tester, twist tester, knit-shrinkage gauge	462
Veeder-Root, Inc.	Production recording and production-control counters; counters for manual tallying, remote indication, shift recording, length control, prevention of over-runs or under-runs	537

K. Industrial Equipment and Supplies

Ajusto Equipment Co.	Chairs, stools	148
American Lava Corp.	Industrial tapes	28
American Safety Table Co., Inc.	Motors	339
Carrier Corp.	Air-conditioning equipment	369
General Electric Co.	Motors, controls, drives	559
Reliance Electric & Engineering Co.	Variable-speed drive, corrosion-proof motor, variable-speed motor pulley	35
Revco, Inc.	Variable-speed reducer and control device, power package	141

EXHIBITOR	PRODUCT	BOOTH NO.
Walton Laboratories, Inc.	Humidifier, dehumidifier, humidity controls, humidity indicator	776
Westinghouse Electric Corp.	Totally enclosed fan-cooled lint-free a.c. motor, nonventilated a.c. motor, vertical twister motor, controller for braking a.c. motors, F.F.-hosiery knitting-machine drive	76

i. Services, Associations, and Publications

American Dyestuff Reporter	Textile publication	211
America's Textile Reporter	Textile publication	153
Carwill Publishing Corp.	Textile publication	53
Daily News Record	Textile publication	139
Davison Publishing Co.	Textile directories	61
Delta Air Lines	Air shipping, travel services	612
Hosiery Industry Weekly	Textile publication	211
Hosiery & Underwear Review	Textile Publication	51
International Silk Association (USA)	Silk, silk-blend fabrics and garments	348
Knitter, The	Textile publication	514
Modern Textiles	Textile publication	78
National Association of Hosiery Mfrs.	Trade association	8
National Knitted Outerwear Assn.	Trade association	9
Panamerican Publishing Co., Inc.	Spanish-language publication	468
Southern Textile News	Textile publication	211A
Talcott, Inc., James	Factoring services	23
Textile Age	Textile publication	400
Textile Industries	Textile publication	106
Textile World	Textile publication	291
Underwear Institute	Trade association	10

GUIDE TO EXHIBITORS

ABERFOYLE MFG. CO. (411)
123 S. Broad St., Philadelphia 9, Pa.

Reps: J. P. Holt, J. S. Kenrick, A. S. Wilson, Jr., E. J. Neal, A. Hobbs, A. Huston, Jr., H. M. Detwiler, R. A. Field, T. S. Byrne, J. A. Holt, R. F. Morris, J. J. Neil, W. G. Vetterlein, D. Gott, W. Crenshaw, J. Boger, R. Mishell, J. Smith, F. Etherington (Products E)

ADELAIDE MILLS (140)
1123 Broadway, New York 10, N. Y.

(Products E)

ADJUSTO EQUIPMENT CO. (148)
2144 Madison Ave., Toledo 2, Ohio

Reps: R. Dawson, S. W. Heer, G. J. Bortner (Products L)

ALLENTOWN BOBBIN WORKS, INC. (150)
431 N. 14th St., Allentown, Pa.

Reps: H. W. Mack, H. S. Barnes (Products C)

AMERICAN ANILINE & EXTRACT CO., INC. (390)
Venango & F. Sts., Philadelphia, Pa.

Reps: W. J. Duddy, M. H. Silberman, L. Kippax, J. H. Jones, W. A. Moran (Products D)

AMERICAN DYESTUFF REPORTER (211)
44 East 23rd St., New York 10, N. Y.

(Products L)

AMERICAN & EFIRD MILLS, INC. (387)
Mt. Holly, N. C.

Reps: T. C. Smotherman, R. J. Freese, R. M. Salisbury, G. W. Pierce, R. M. Ingle, E. H. Timanus, W. E. James, Jr., W. H. Suttenfield, C. F. McPhillips, R. F. Jessen, G. W. Krentler, H. R. Swagel, W. H. Hall (Products E)

AMERICAN ENKA CORP. (163)
206 Madison Ave., New York, N. Y.

Reps: M. B. Carr, K. N. Bacon (Products E)

AMERICAN LAVA CORP. (28)
Cherokee Blvd., Chattanooga, Tenn.

Reps: R. B. Williams, J. B. Shacklett, J. E. Spearman, J. W. Crisp, W. M. Crittenden, W. J. Geary, J. S. Gosnell, J. List, M. Schantzen (Products C, K)

AMERICAN SAFETY TABLE CO., INC. (339)
224 Fifth Ave., New York, N. Y.

Reps: D. Frankel, J. Frankel, R. Pettit, B. Greenwalt, A. Bolder, S. Rotman (Products H, K)

AMERICA'S TEXTILE REPORTER (153)
286 Congress St., Boston, Mass.

(Products L)

AMERICAN THREAD CO., INC. (403)

260 Broadway, New York, N. Y.

(Products E)

AMERICAN VISCOSE CORP. (409)
350 Fifth Ave., New York, N. Y.

Reps: T. H. Andrews, D. A. Davis, J. C. Folsom, W. Hadfield, W. Hauer, F. F. Hilson, J. H. Kemp (Products E)

AMSCO PACKAGING MACHINERY, INC. (121)
31-31 48th St., Long Island City, N. Y.

Reps: E. E. Messmer, J. Sylvester, J. Keenan, G. Cignoli, S. Watson, E. Watson, J. Kelly, G. Widersheim, H. Weber, F. Czifra, R. H. Freeman (Products G)

ATLANTIC RAYON CORP. (327)
125 W. 41st St., New York 36, N. Y.

Reps: L. Malina, H. F. C. Wilcox, F. H. Diamond, F. Malina, A. Malina, J. J. Richrath, R. Westland, E. Taber, E. K. Woods, J. Gutcheon, H. Calder, N. Vailman, B. Appelle, S. H. Eisenberg, J. Shapiro, B. Meltzer, H. Greene, E. Krueger, D. Aibel (Products E)

BANCROFT & SONS, JOSEPH (155)
Wilmington, Del.

(Products E)

BANNER YARN & DYEING CORP. (261)
488 Morgan Ave., Brooklyn, N. Y.

(Products E)

BARBER-COLMAN CO. (213)
1300 Rock St., Rockford, Ill.

Reps: L. L. Lideen, F. R. Lincoln, F. D. Taylor, N. H. Alford, J. C. Ballard, J. F. Carter (Products A)

BEMIS BRO. BAG CO. (142)
Terre Haute, Ind.

Reps: E. Taylor, H. O. Parker, R. J. Potter, E. Christenburg, E. Fuller (Products G)

BENTLEY KNITTING MACHINERY ORGANIZATION, INC. (55)
31 Canal St., Providence, R. I.

(Products B)

BERTNER CO., SIDNEY (610)
704 Empire State Bldg., New York, N. Y.

(Products E)

BOGER & CRAWFORD (530)
K & East Venango Sts., Philadelphia, Pa.

Reps: F. Boger, E. T. Boger, A. H. J. Boger, I. B. Wattis, W. R. Carothers, J. Carrasco, M. R. Copeland, B. Lauderbach, H. Segal, S. C. King, J. L. Lainz, G. Solis (Products E)

BRANT YARNS, INC. (140)
1123 Broadway, New York 10, N. Y.

(Products E)

BRINTON FABRICS MACHINE DIVISION (231)
350 Fifth Ave., New York, N. Y.

(See Scott & Williams) (Products B)

CANNON MILLS, INC. (505)
70 Worth St., New York 13, N. Y.

Reps: W. C. Cannon, H. E. Aken, J. C. Williams, T. R. Smith, W. F. Denning, D. A. Long, W. H. Curlee, R. C. Rapp, F. E. Byrne, C. V. Albright, J. C. Bartlett, H. Crumbliss, F. A. Dusch, Jr., J. J. Meyer, J. F. Russell, J. W. Turner (Products E)

CARBIDE & CARBON CHEMICALS CO. (434)
Textile Fiber Division
30 E. 42nd St., New York 17, N. Y.

Reps: A. L. Snyder, J. S. McGilly, W. T. Burgin, C. A. Strodle, H. L. Carolan (Products E)

CARON SPINNING CO. (422)
Rochelle, Ill.

Reps: O. J. Caron, J. B. Caron, W. H. Stocking, B. Zintak, A. Amatruda, R. Caron, J. B. Cameron, W. Eipper (Products E)

CARRIER CORP. (369)
300 S. Geddes St., Syracuse 1, N. Y.

(Products K)

GUIDE TO EXHIBITORS (Continued)

CARWILL PUBLISHING CORP. (53)
1 W. 34th St., New York 1, N. Y.

(Products L)

CELANESE CORP. OF AMERICA (214)
180 Madison Ave., New York, N. Y.

Reps: G. Hein, E. Engel, W. O'Neil, H. Macauley, B. Kearney (Products E)

CHANDLER MACHINE CO. (542)
West St., Ayer, Mass.

Reps: R. Shields, R. C. Maxant, A. A. Maxant (Products H)

CHEMSPUN YARNS LTD. (218)
Mooresville, N. C.

(Products E)

CHEMSTRAND CORP. (66)
350 Fifth Ave., New York, N. Y.

Reps: E. A. O'Neal, Jr., W. G. Luttge, M. H. Morse, R. E. Smith, B. F. Bertland, C. W. Carvin, Jr., D. W. Bedell, C. W. Gayler (Products E)

CLOVERLEAF-FREELAND CORP. (37)
Pine & Green Sts., Hazleton, Pa.

Reps: T. Coxe, W. H. Miller, G. B. Markle, Jr. (Products C)

COCKER MACHINE & FOUNDRY CO. (88)
Gastonia, N. C.

Reps: J. Cocker III, J. Bodansky, F. Suggs, D. Shepherd, H. W. Groce (Products A, J)

COMER-AVONDALE MILLS, INC. (375)
1430 Broadway, New York 18, N. Y.

Reps: B. C. Weber, W. R. Austin, P. R. Branton, L. B. Allen, G. Clark, I. C. Schumacher, J. E. Bush, W. Hardegree, C. Crowther, G. Bailey, H. Morrow, S. E. Fulton, R. Fulton, J. Ballow (Products E)

CONTINENTAL CAN CO., INC. (389)
Shellmar-Betner Division
100 E. 42nd St., New York 17, N. Y.

Reps. E. P. Dunham, Jr., H. G. Fontaine (Products E)

CONAPAC CORP. (601)
120 E. 13th St., New York 3 N. Y.

Reps: R. H. Schnoor, E. E. Miranda, J. H. Brezinski (Products G)

COSA CORP. (499)
405 Lexington Ave., New York, N. Y.

Reps: G. J. Luy, K. Bahlo, L. Platnick (Products F, J)

COTTON YARNS, INC. (145)
389 Fifth Ave., New York, N. Y.

Reps: C. A. Ross, R. J. Gurney, H. M. Kamins, H. O. Peuler, A. Kushner, M. Reibel (Products E)

CRAWFORD CO., INC., H. E. (85)
262 S. Main St., Kernersville, N. C.

Reps: H. E. Crawford, H. E. Crawford, Jr., T. A. Fulton, D. A. Smith, W. R. Stinnette, R. D. Johnson, J. H. Wells, N. Aubre (Products B, C, H)

CROSS COTTON MILLS CO. (543)
Box 529, Marion, N. C.

Reps: E. Cross, Jr., O. R. Cross (Products E)

CUMMINGS-LANDAU LAUNDRY MACHINERY CO., INC. (107)
305 Ten Eyck St., Brooklyn 6, N. Y.

Reps: E. Cummings, D. Green (Products F)

CUTTING ROOM APPLIANCES CORP. (429)
1134 Broadway, New York 10, N. Y.

Reps. D. Grossberg, B. Gottschalk, J. E. Fox, J. Pransky, D. Maimin, S. Hutkin, S. L. Hirsch, H. Liebman, S. Lerner, A. Greene, B. Nathanson (Products H)

DAILY NEWS RECORD (139)
7 E. 12th St., New York, N. Y.

(Products L)

DAVISON PUBLISHING CO. (61)
Ridgewood, N. J.

(Products L)

DEERING, MILLIKEN & CO., INC. (421)
P.O. Box 27, Pendleton, S. C.

Reps: R. B. Newton, N. Armitage, C. Evans, R. McCullough, F. Langdon, L. E. Ochs, A. T. Trumbull (Products E)

DELTA AIR LINES, INC. (612)
Cargo Division, Atlanta Airport, Atlanta, Ga.

Reps: A. L. Caughey, E. F. Porter (Products L)

DIXIE MERCERIZING CO. (527)
Chattanooga, Tenn.

Reps: J. B. Frierson, A. K. Johnson, C. R. Ewing, P. D. Morrow, W. W. Logan, R. L. Voigt, M. Nolan, G. M. Porges, T. J. Tighe, L. K. Hill, W. C. Henderson, W. D. Evans, W. A. Eippes, Jr., F. W. Frank, G. W. Veness, P. H. Dalglish, M. M. Munsill, J. B. Cameron, A. Cameron III, E. R. Kimball, G. S. Bryan (Products E)

See Index to Products —beginning on page 152

DOBECKMUN CO. (136)
3301 Monroe St., Cleveland, Ohio

Reps: A. S. Gould, L. Seidel, P. Nathanson, W. Lenox (Products E, G)

DRAPER CORP. (225)
Hopedale, Mass.

Reps: C. F. Miller, R. C. Dott, B. R. Ebersman (Products B)

DUBIED MACHINERY CO. (272)
21-31 46th Ave., Long Island City 1, N. Y.

Reps: J. G. Sandri, R. Singer, E. Hafner (Products B)

DU PONT DE NEMOURS & CO., INC., E. I. (109)
Wilmington, Del.

(Products E)

EASTERN YARN MILLS, INC. (218)
1530 McDonald Ave., Brooklyn, N. Y.

(Products E)

EASTMAN CHEMICAL PRODUCTS, INC. (303)
Kingsport, Tenn.

Reps: F. Ruddock, A. M. Tenney, Jr., M. L. Phelps, R. Crawford, H. Smith, H. Reebel (Products E)

EBERLY, INC., JOHN A. (538)
Reading, Pa.

Reps: V. L. Eshelman, G. MacFadyen, A. L. Eshelman 2nd. (Products C)

EDLEY MACHINE CO. (470)
High Point, N. C.

Reps: E. Blankstein, O. R. York, G. Poole, V. Rich, R. Colman, B. Farber (Products B, G)

EMSIG MFG. CO. (102)
225 W. 60th St., New York 23, N. Y.

(Products C)

ENGINEERED PLASTICS, INC. (63)
Gibsonville, N. C.

Reps: D. M. Davidson, Jr., C. H. Phillips, E. Jones (Products C)

ERRICH INTERNATIONAL (552)
5 E. 35th St., New York, N. Y.

Reps: M. L. Ruderman, H. Bitterman, J. Miller, D. Mitchell, O. Roth (Products G)

ETHERINGTON BROS. (433)
1518 Walnut St., Philadelphia 2, Pa.

Reps: B. H. Etherington, Jr., F. H. Etherington, L. S. Ederer, H. W. Swift, R. T. Davis, J. R. Crawford (Products E)

EVERETT SALES & EQUIPMENT CORP. (449)
251 Third Ave., New York 10, N. Y.

(Products G)

EWING-THOMAS CORP. (114)
Rose & Walnut Sts., Chester, Pa.

Reps: J. L. Rankin, J. W. Jester, G. W. Fiss 3rd, R. E. Rankin (Products E)

FANCOURT CO., W. F. (515)
516 S. Delaware Ave., Philadelphia 47, Pa.

Reps: J. Fancourt, T. Lindley, R. Rhodes, W. Sawyer, C. Wolf (Products D)

FEUSTEL, INC., ERNEST A. (501)
N. J. State Highway #17, Lodi, N. J.

Reps: E. A. Feustel, F. C. Feustel, H. W. Fricke (Products C)

FIDELITY MACHINE CO., INC. (243)
3908 Frankford Ave., Philadelphia 24, Pa.

Reps: L. Katz, R. G. Faigenbaum, L. Hill, P. Mahler, T. Thore, R. Peel, C. S. Brannock (Products B)

FIRSCHING & SON, INC., J. A. (282)
421 Broad St., Utica 2, N. Y.

Reps: R. A. Firsching (Products H)

FITCHBURG SPINNERS SALES CORP. (143)
1 Nockege St., Fitchburg, Mass.

(Products E)

FLETCHER WORKS, INC. (191)
Glenwood Ave. & Second St., Philadelphia 40, Pa.

Reps: E. T. Taws, T. B. Baldridge, Jr., H. J. Roessel, Sr., H. J. Roessel, Jr., F. S. Claghorn, H. B. Allison, F. W. Warrington (Products A)

FOSTER MACHINE CO. (82)
S. Broad St., Westfield, Mass.

Reps: W. C. Chisholm, E. C. Connor, H. W. Ball, P. H. Farmer, E. P. Dodge, C. B. Terry, H. E. Swift, J. B. Davenport, G. W. Mallory, F. F. Stange, C. P. Bullard, C. A. Faunce (Products A)

FRANKLIN PROCESS CO. (444)
564 Eddy St., Providence, R. I.

Reps: W. F. Wolfe, C. W. Dawson, H. N. Graves, R. B. Lusignea, I. W. Gardner, R. S. Allen, M. E. Davis, C. E. McElwee, L. Grindrod, S. W. Cable, A. G. Dana, R. F. Strahley, H. O. Fry, R. C. McCarthy, D. M. Robinson, B. S. Phetteplace, J. R. Garner, E. T. Wrenn (Products E)

GARMENT FINISHING EQUIPMENT CORP. (133)
18 Brattle St., Cambridge, Mass.

Rep: F. Renick (Products F)

GEIGY DYESTUFFS (165)
89 Barclay St., New York 8, N. Y.

Rep: W. E. Bill (Products D)

GENERAL ELECTRIC CO. (559)
Apparatus Sales Division
1 River Road, Schenectady, N. Y.

(Products K)

GINSBERG MACHINE CO., INC. (266)
224 Fifth Ave., New York, N. Y.

Reps: S. Margolis, H. Ginsberg, C. Gerstein, H. Stout, S. Alexander, K. Diehm, W. Bleicher (Products H)

GLOBE DYE WORKS CO. (377)
4500 Worth St., Philadelphia, Pa.

Reps: H. T. Greenwood, T. S. Greenwood, W. A. Hilbert, W. B. Taylor, R. W. Foltz, F. V. Traut (Products E)

GROVE NYLON CO. (331)
150 E. Grove St., Scranton, Pa.

Reps: W. L. Schautz, A. G. Schautz, Dr. R. F. Stuewer, J. Kalinowski, W. T. Cheatham, H. C. James, W. C. Napier, Jr., D. M. Harshman, R. W. Yeabsley, R. F. Yeabsley (Products E)

HARDING, INC., H. C. (57)
2nd & Tilghman Sts., Philadelphia, Pa.

Reps: G. J. Reihl, M. Wolf (Products C)

HARRIET-HENDERSON COTTON MILLS (117)
Henderson, N. C.

Reps: M. Y. Cooper, T. H. Crudup, Jr., D. O. Blevins, W. C. Brown, P. H. Dalglish, M. Munsill, A. G. Sewell, D. F. Swain, P. Sweetser (Products E)

HAYES INDUSTRIES, INC. (611)
Jackson, Mich.

Reps: W. H. Maxson, G. Barrie, R. D. Richards, W. Sharp, J. Prins, R. E. L. Holt, Jr., J. P. Laird (Products A)

HAYSSEN MFG. CO. (555)
1305 St. Clair Ave., Sheboygan, Wis.

Reps. R. P. Wilson, J. C. Johnston, F. Koehn, J. Willis, A. F. Perry, Jr. (Products G)

HEANY INDUSTRIAL CERAMIC CORP. (19)
P. O. Box 530, New Haven, Conn.

Reps: A. O. Pieper, R. L. Carroll, R. B. Bennett (Products C)

HEMPHILL CO. (250)
Subdivision of Draper Corp., Hopedale, Mass.

Reps: B. R. Ebersman (Products B)

HENRICI LAUNDRY MACHINERY CO. (41)
10 Henrici St., Mattapan 20, Mass.

(Products F)

HERR MFG. CO., INC. (38)
318 Franklin St., Buffalo 2, N. Y.

Reps: H. B. Atwood, R. M. Leach, W. W. Woodard, J. McLean (Products C)

HESS, GOLDSMITH & CO., INC. (75)
Atwater Division, 627 W. Main St., Plymouth, Pa.

Reps: E. J. Schellenberg, E. J. Schellenberg, Jr., R. P. Schellenberg, S. D. Counterman, C. Jones, W. O'Neill (Products E)

HOFFNER RAYON CO. (456)
Belgrade & Ontario Sts., Philadelphia 34, Pa.

Reps: J. C. Hoffner, J. G. Hoffner, J. M. Hoffner, C. P. Hoffner, L. H. Hoffner, L. A. Oechslin, C. R. Bryan (Products E)

HOFMANN & CO., ALFRED (341)
629 59th St., West New York, N. J.

Reps: C. A. Hepp, P. Schoenster, H. Peter, A. A. Brenner (Products F, J)

HOFMANN NEEDLE WORKS, INC., ALFRED (355)
3710 Hudson Ave., Union City, N. J.

Reps: C. A. Hepp, R. Eppler, H. L. Wirth, A. W. Bachman, G. C. Graves, C. B. Paulus, G. W. Veness, E. Groz, Dr. C. Foehl, I. M. Haldane (Products C)

HOHENBERG, B. L. (49)
215 Fourth Ave., New York, N. Y.

Reps: B. Hohenberg, O. Hohenberg, N. Miller (Products E)

HOOKER & SANDERS CORP. (395)
40 Worth St., New York, N. Y.

Reps: J. P. Sanders, M. E. Roper, M. Gould (Products E)

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HOSIERY INDUSTRY WEEKLY (211)
44 E. 23rd St., New York 10, N. Y.

(Products L)

HOSIERY & UNDERWEAR REVIEW (51)
1 W. 34th St., New York, N. Y.

(Products L)

HOWES PUBLISHING CO. (211)
44 E. 23rd St., New York, N. Y.

(Products L)

INDIAN ORCHARD FINISHING CO. (116)
Indian Orchard, Mass.

Reps: L. Wess, C. Brennan (Products D)

INDUSTRIAL DRYER CORP. (151)
432 Fairfield Ave., Stamford, Conn.

Reps: P. H. Friend, R. G. Leininger, J. R. Tutt, F. W. Caesar (Products A)

INTERNATIONAL SILK ASSOCIATION (348)
489 Fifth Ave., New York, N. Y.

Reps: G. Elbogen, A. Barber, S. F. Brand (Products L)

INTERSTATE YARN MILLS, INC. (431)
5725 Hudson Blvd., North Bergen, N. J.

Reps: L. Ginsberg, A. E. Siegal, J. Albert, S. Kimmel (Products E)

IVES CO., INC., LOYAL T. (344)
19 Water St., New Brunswick, N. J.

Reps: T. Whitlock, T. Whitlock, Jr., C. L. Lydecker (Products C)

J & H LABEL PROCESSING CORP. (385)
230 W. Passaic St., Maywood, N. J.

Reps: C. Jordon, G. Cunningham (Products G)

JOHNSTON MILLS CO. (540)
1401 Johnston Bldg., Charlotte, N. C.

Reps: D. R. Johnston, D. R. Jonas, R. M. Bechtel, F. N. Belk, W. J. Crummer, J. W. Ferguson, E. E. Jones, Jr., A. R. Newcombe III, W. B. Phelps, Jr., E. M. Peacock, W. J. Yates (Products E)

JORDAN MILLS, INC. (120)
Columbus, Ga.

Reps: R. C. Jordan, Jr., W. A. Livingston, D. Robson, N. R. Jacobs, J. T. Miller, C. L. Miller, Jr., C. L. Wyrick, R. W. Boyd (Products E)

K AND J TRADING CORP. (207)
932 Madison St., Brooklyn, N. Y.

Reps: M. Kaplan, B. Belaief (Products B)

KAHN & FELDMAN, INC. (419)
200 Madison Ave., New York 16, N. Y.

(Products E)

KAUMAGRAPH CO. (549)
Box 388, Wilmington, Del.

Reps: F. T. Marston, B. P. Lindley, A. J. Geiringer, D. V. Woods, J. L. Reeves, C. C. Cobb, V. G. Stanton, W. P. Raiford, W. C. Marden, J. A. Martin (Products G)

KEYSTONE DYEING CO., INC. (504)
3215 Amber St., Philadelphia, Pa.

Reps: F. P Murphy, H. Kline (Products E)

KIDDE MFG. CO., INC. (489)
35 Farrand St., Bloomfield, N. J.

Reps: W. J. Behr, Jr., J. Fleming, H. W. Ruddick, C. E. Glover, K. Kaak, E. L. Herbert (Products A, B)

KIMBALL CO., A. (399)
444 Fourth Ave., New York 16, N. Y.

Reps: J. H. Kremer, W. O. Hopley, D. H. Derber, F. N. Brady, H. C. Fryer, D. D. O'Brien (Products G)

KLAUDER-WELDON-GILES MACHINE CO. (54)
Adams Ave. & Leiper St., Philadelphia, Pa

Reps: T. Bell, J. Rascher, E. Horswood, W. E. H. Bell (Products F)

KLUMPP CO., JOSEPH (503)
1617 Pennsylvania Blvd., Philadelphia, Pa.

Reps: J. J. Klumpp, G. L. Vonder Lindt, W. Gill, Jr. S. C. Stewart, W. J. Kane, C. H. Beitel, C. H. W. Mandeville, Jr. (Products E)

KNITTER, THE (514)
Charlotte 1, N. C.

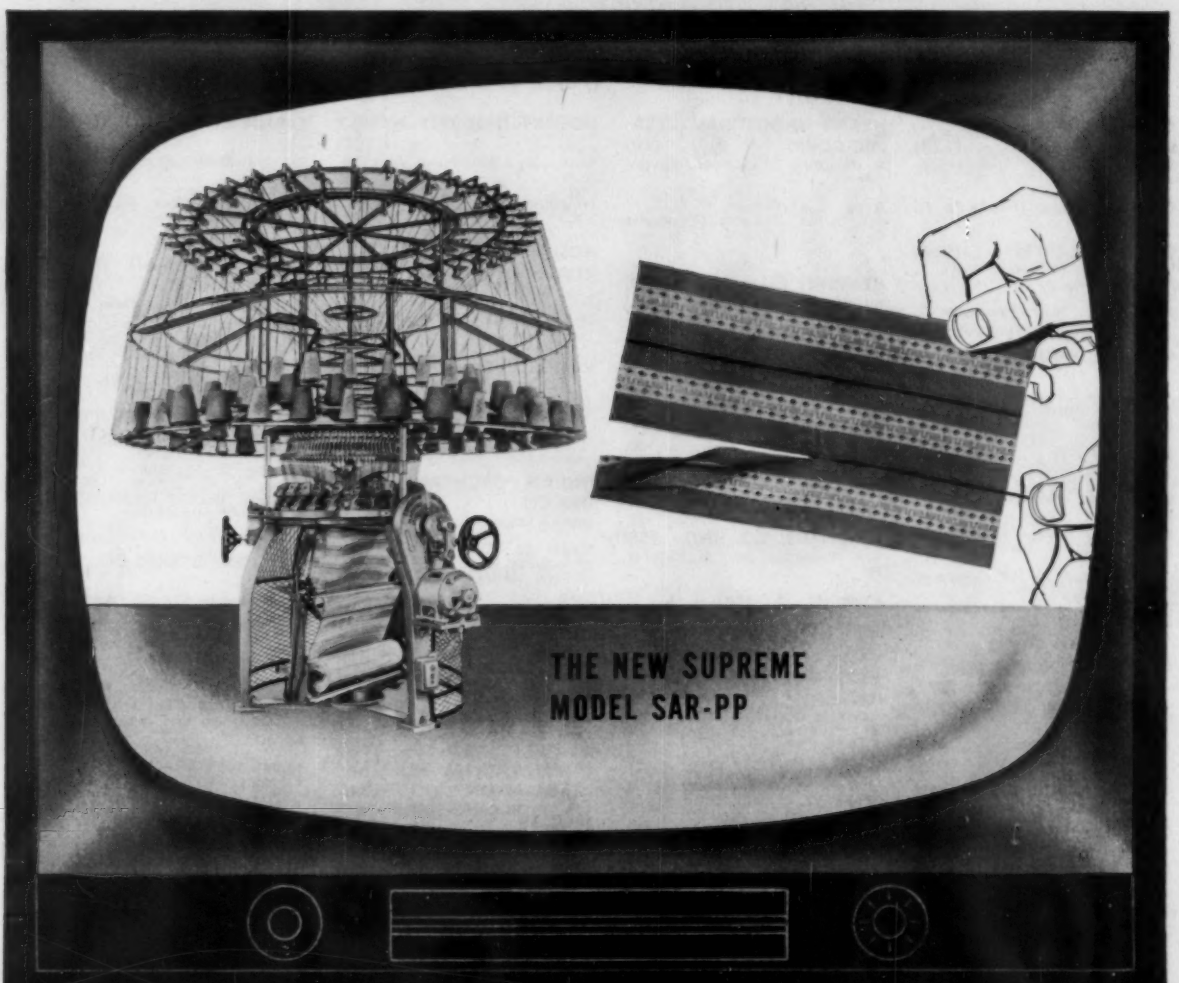
(Products L)

KNITTING MACHINE & SUPPLY CO. (80)
250 W. Broadway, New York, N. Y.

Reps: E. Marthaler, A. D. Van Anda, H. Fleck (Products B)

KRUSE & SLATTERY, INC. (44)
1492 Haddon Ave., Camden, N. J.

Reps: J. T. Thomson, J. J. Slattery, Jr. (Products C)



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GUIDE TO EXHIBITORS (Continued)

LACONIA-COOPER CO., INC. (455)
Laconia, N. H.

Reps: H. Bacon, G. Dawson, C. E. Gamper, B. Lauderbach, K. Lingley, G. A. Parsons (Products C)

LA MODE HOSIERY CO. (439)
2004 Thomas St., Hollywood, Fla.

Reps: J. Klein, J. S. Siegel, P. G. Vincoli, A. Vincoli, E. Baldau, S. Szulc (Products B)

LASSITER CORP. (357)
5705 Empire State Bldg., New York, N. Y.

Reps: J. V. Shea, W. B. Wine, H. C. Hall, R. W. Plover, M. R. Smilow, R. E. Cushing, J. C. Tiddy (Products G)

LATTA, CURRIER CO., INC. (74)
350 Fifth Ave., New York, N. Y.

Reps: A. W. Latta, Jr., A. M. Currier, W. F. Durkin, W. L. Huggins III, D. S. La Far, L. E. Rudisill, J. A. Moore, E. M. Hunter, Jr., E. Malloy, M. Malloy (Products E)

LAUREL SOAP MFG. CO., INC. (547)
Tioga & Thompson Sts., Philadelphia, Pa.

Reps: C. E. Bertelet, W. H. Bertolet, Jr., A. H. Gaede, F. Jackson, W. H. Bertolet 3rd, T. C. Holst, B. N. Peterson, J. P. McGinty, A. H. Rant (Products D)

LEATEX CHEMICAL CO. (3)
2722 N. Hancock St., Philadelphia, Pa.

(Products D)

LEGGE, PERCY A. (284)
212 Summer St., Boston, Mass.

Reps: C. B. Rockwell, I. Littlefield, Jr., Marcel Dursin, Maurice Dursin, Louis Dursin, R. J. Mitchell, F. Armitage, H. Stawniak, T. J. Gracia, H. T. Whitin, C. E. Adams, Jr., C. E. Neeld, Jr., W. Smith, R. Rosenfeld, R. Condon, T. W. Adams, W. H. Brewer, L. Wagoner (Products E)

LEON-FERENBACH, INC. (381)
274 Madison Ave., New York, N. Y.

Reps: C. Ferenbach, G. Ferenbach, R. S. Ferenbach, R. W. Boyd, C. W. Wolcott, R. L. Wise (Products E)

LIBERTY THROWING CO., INC. (262)
Kingston, Pa.

(Products E)

LIEBERKNECHT, INC., KARL (391)
Reading, Pa.

Reps: L. C. Milliken, C. A. Friedmann, G. B. Groh, R. Thierfelder, J. Ranger, H. Koehler, E. Zesch, C. Bilder, M. E. Radvanyi (Products B)

LINDLY & CO., INC. (50)
218 Herricks Rd., Mineola, L. I., N. Y.
(Products J)

McBRIDE CO., INC., EDWARD J. (29)
Cottman & Wissinoming Sts., Philadelphia, Pa.

(Products C)

MALINA CO. (327)
125 W. 41st St., New York 36, N. Y.

Reps: J. J. Richrath, R. Westland, E. Taber, E. Woods, J. Gutcheon, H. Calder, N. Vaiman, B. Appelle, S. H. Eisenberg, J. Shapiro, B. Meltzer (Products E)

MARKEM MACHINE CO. (295)
Keene, N. H.

Reps: D. Putnam, T. Huggins, C. Cheeseman, A. McNaughton (Products G)

MARLEY DISTRIBUTING CO., INC., STANFORD (164A)
505 Fifth Ave., New York, N. Y.

Rep: S. Marley (Products H)

MARVEL SPECIALTY CO., INC. (277)
Paducah, Ky.

Reps: G. Harralson, G. T. Smith, C. G. Newton, L. T. Ballard, H. Hurley, C. McAnally (Products H)

MASUREL MILLS (502)
Samoset St., Woonsocket, R. I.

Reps: R. E. Boyaval, B. G. Bouthilette, J. Smolin, M. E. Messier, J. Purdy (Products E)

MAYER TEXTILE MACHINE CORP. (186)
West New York, N. J.

Reps: H. Nitmann, N. Brody (Products B)

MEESE, INC. (343)
108 St. Michaels St., Madison, Ind.

(Products C)

MERROW MACHINE CO. (264)
28 Laurel St., Hartford, Conn.

Reps: J. M. Washburn, W. M. Baker, G. B. Armstead, J. Washburn, C. W. Davis (Products H)

See Index to Products —beginning on page 152

METLON CORP. (437)
432 Fourth Ave., New York, N. Y.

Reps: A. C. Brucks, T. Katoff, W. Plowden, K. H. Inderfurth (Products E)

MEYERS & CO., CLARENCE L. (305)
2nd & Somerset Sts., Philadelphia, Pa.

Reps: C. L. Meyers, M. M. Meyers, J. A. Meyers, G. E. Meyers, E. N. Meyers, C. E. Bender, E. W. Fowler, L. Eschelbach, H. W. Schrader, D. Strauss (Products E)

MILLER WRAPPING & SEALING MACHINE CO. (121)
18 S. Clinton St., Chicago, Ill.

Reps: E. E. Messmer, J. Sylvester, J. Keenan, G. Cignoli, S. Watson, E. Watson, J. Kelly, G. Widersheim, H. Weber, F. Czifra, R. H. Freeman (Products G)

MILTON MACHINE WORKS, INC. (335)
Milton, Pa.

Reps: J. S. Billig, C. J. Anchor, G. W. Blunt, W. DgW. Leinbach (Products C)

MODERN TEXTILES (78)
303 Fifth Ave., New York, N. Y.

(Products L)

MOHAWK BUTTON CO. (37A)
252 W. 29th St., New York, N. Y.

Reps: A. Moses, M. Moses, Albert Moses (Products C)

MONARCH MARKING SYSTEM CO. (330)
216 S. Torrance St., Dayton, Ohio

Reps: J. West, C. Huckins, Jr., A. Clark, R. Weisenfeld (Products G)

MULLER & CO., L. P. (466)
16th & Pennsylvania Blvd., Philadelphia, Pa.

Reps: H. D. Muller, H. G. Harper, J. M. Matlack, J. T. Hawthorne, F. H. Ward, T. H. Nicholson, T. C. Brown, T. Dove III, R. A. Eldridge, W. C. Muller, H. R. Peck, E. O. Penington, H. R. Penington, A. B. Reid, W. J. Scott, H. E. Protzmann (Products E)

NARROW FABRIC CO. (401)
Reading, Pa.

Reps: S. R. Fry, J. W. Sweeney, T. M. Fry, G. Dudley, Jr., F. S. Pierce, S. S. MacCallum, W. S. Towson, K. R. Lieb, C. E. Gray, H. V. Vernet, Jr., A. A. Willus, O. A. Kemp, C. H. James (Products E)

NATIONAL ASSOCIATION OF HOSIERY MFRS. (8)
468 Fourth Ave., New York, N. Y.

(Products L)

NATIONAL BUNDLE TYER CO. (384)
Blissfield, Mich.

Reps: G. P. Saxton (Products G)

NATIONAL KNITTED OUTERWEAR ASSOCIATION (9)
386 Fourth Ave., New York, N. Y.

(Products L)

NEW YORK PRESSING MACHINERY CORP. (423)
880 Broadway, New York 3, N. Y.

Reps: H. E. Cole, S. Berl, M. Lachs, M. Puretz, A. Puretz (Products F)

O'BRIEN, RICHARD C. (293)
3701 N. Broad St., Philadelphia 40, Pa.

Reps: R. C. O'Brien, A. J. Moher, C. J. McAlaine, W. C. Schmidt, E. L. Merritt, Jr., G. Richardson, A. K. Moher, H. M. Freeman, Jr., K. MacKay, B. G. Collingwood, J. S. Persinger (Products E)

ORDNANCE GAUGE CO. (199)
Amber & Hagert Sts., Philadelphia, Pa.

Reps: J. S. Abramski, M. M. Rothkopf, J. S. Farago (Products B)

PANAMERICAN PUBLISHING CO., INC. (468)
570 Seventh Ave., New York, N. Y.

(Products L)

PARAMOUNT TEXTILE MACHINERY CO. (313)
131 S. Wabash Ave., Chicago 3, Ill.

Reps: H. Pope, Jr., J. C. Fenley, C. R. Scheuring, W. H. Albertson, L. J. Albertson, L. D. Ross, O. A. Siegel, W. E. Pike, H. N. Campbell, W. H. Brown, F. Snogren (Products F, G)

PERNICK CO., INC., JOSEPH (336)
5419 Flushing Ave., Maspeth, L. I.

Rep: L. Pernick (Products F)

PHILADELPHIA METAL DRYING FORM, INC. (374)
4550 Torresdale Ave., Philadelphia 24, Pa.

Reps: A. H. Johnson, T. P. Flanagan, B. B. Johnson (Products F)

PROCTOR & SCHWARTZ, INC. (557)
7th and Tabor Rd., Philadelphia, Pa.

Reps: W. H. Poole, D. D. Cunningham, C. W. Allen, A. Bickel, F. Redman (Products F)

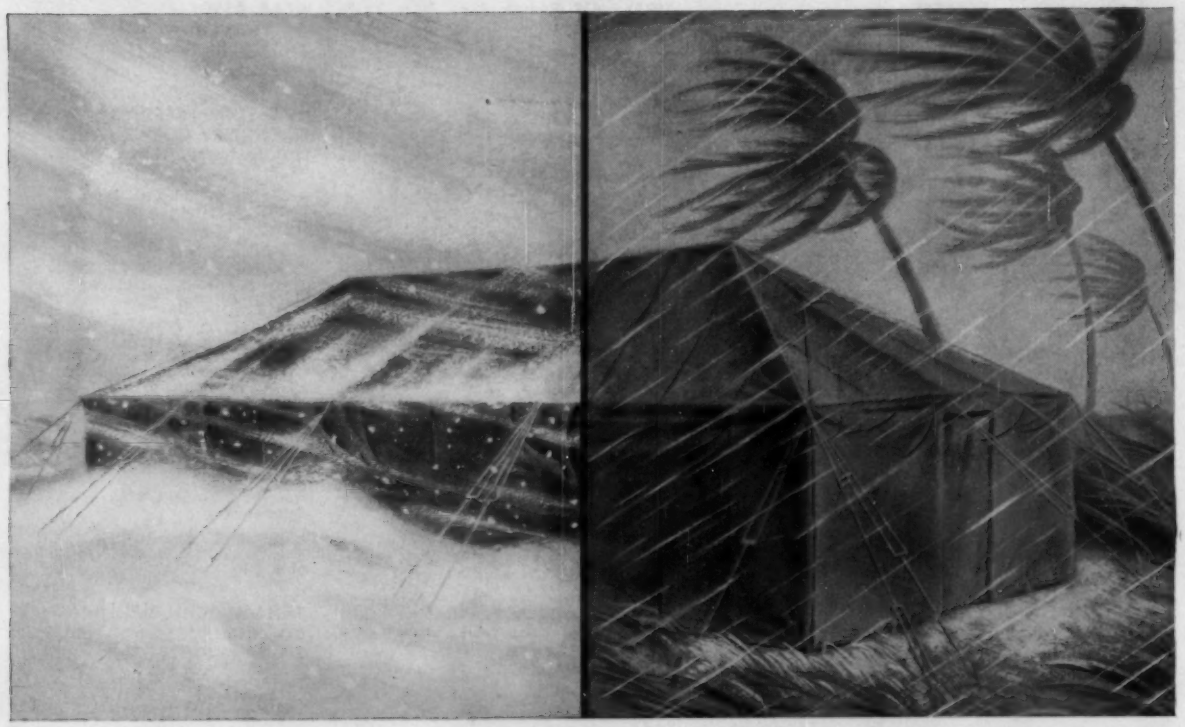
QUEENS MACHINE CO. (205)
280 Starr St., Brooklyn, N. Y.

Reps: M. Zimic, J. Mishkovsky, J. Mayer (Products B)

REECE CORP. (427)
200 Prospect St., Waltham 54, Mass.

(Products H)

LET IT BLOW:



Fortisan-36 stands up in the U. S. Army

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This incredibly strong yarn is woven into the webbing which forms the skeletal structure of the tent. It absorbs all stress, prevents tearing and permits use of lighter weight tent fabrics.

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Strong? Fortisan-36 has a strength to weight ratio among the highest of existing commercial fibers. It has exceptional dimensional stability, and the lowest elongation at break of any synthetic organic fiber. It is being welcomed into many applications requiring low stretch . . . from V-belts to paper laminate reinforcing—to Army tents.

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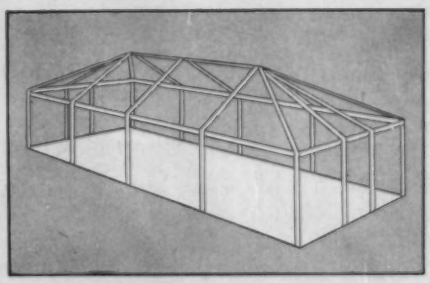

New "skeleton" webbing permits lightweight tent fabrics.

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In Canada

Chemcel, Canadian Chemical Cellulose Co., Ltd. 2035 Guy St. Montreal

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FORTISAN® RAYON • FORTISAN®-36 RAYON • ARNEL® TRIACETATE • ACETATE • VISCOSE-RAYON

GUIDE TO EXHIBITORS (Continued)

REINER, INC., ROBERT (69)
550 Gregory Ave., Weehawken, N. J.

Reps: K. T. Marx, J. A. Vollmann, W. Whary, W. Horn, J. Koegler, D. Scheuke (Products A, B, F)

RELIANCE ELECTRIC & ENGINEERING CO. (35)
Cleveland 10, Ohio

Reps: P. Talbot, G. Miller, K. Miller, K. S. Lord, E. H. Sowers, S. King, L. W. Kutz, J. Mahoney, A. W. Bridges, M. Phelps, H. B. Moore (Products K)

REVCO, INC. (141)
1900 Lyndale Ave., S., Minneapolis 5, Minn.

Reps: R. A. Hersey, L. J. Cross, A. Benzemann (Products K)

RICHMOND OIL, SOAP & CHEMICAL CO., INC. (202)
1041 Frankford Ave., Philadelphia 25, Pa.

Reps: W. Alkus, M. W. Levi, J. W. Schenkel (Products D)

ROBISON RAYON CO., INC. (509)
29 River St., Pawtucket, R. I.

Reps: R. G. Franks, H. S. Robison, J. E. Murphy, C. P. Doonan, F. A. Nordon, C. N. Peterson, S. M. Robison (Products E)

ROCHESTER BUTTON CO. (45)
215 Fourth Ave., New York, N. Y.

Reps: B. Popkin, M. Shantz, G. Schelbert (Products C)

ROSE PATCH & LABEL CO. (443)
609 Myrtle St., N.W., Grand Rapids, Mich.

Reps: L. E. Cook, W. J. Chaille, H. J. Schuitema, D. S. Kingsnorth, D. F. Rouse, R. F. Hathaway, J. M. Carroll, J. Y. Pharr, Jr. (Products G)

ROTHKOPF & CO., MAC M. (46)
317 Bushwick Ave., Brooklyn 6, N. Y.

Reps: M. M. Rothkopf, G. A. Rothkopf, A. Rothkopf, B. L. Rothkopf (Products B, C, J)

ROYERSFORD NEEDLE WORKS, INC. (461)
Royersford, Pa.

Reps: F. Heller, R. B. Schindler, R. Breidenbach (Products C)

SACHS CO. (338)
545 Eighth Ave., New York, N. Y.

Reps: A. L. Miller, I. H. Mur (Products E)

SAUQUOIT SILK CO., INC. (382)
302 Fig St., Scranton 5, Pa.

(Products E)

SCHOLLER BROS., INC. (463)
Collins & Westmoreland Sts., Philadelphia, Pa.

Reps: E. S. Atkinson, J. F. Noble, J. O. Sweitzer, L. M. Boyd, C. H. Schuettler, W. R. Sargent, W. S. Truette, E. J. Fitzgerald, Jr., D. E. Robertson, A. T. Glenn (Products D)

SCOTT TESTERS, INC. (297)
101 Blackstone St., Providence, R. I.

Rep: D. Scott (Products J)

SCOTT & WILLIAMS, INC. (231)
350 Fifth Ave., New York, N. Y.

Reps: B. J. Faucette, W. O. McMillan, H. G. Kellett, F. H. Hallenbeck, J. S. Hubbard, A. W. Nealley, J. G. Schmidt, W. E. Chaput, W. D. Ide, D. B. Brinton, R. W. Bennett, P. P. Chaput, J. R. Seymour, W. V. Shenk, S. P. Sayewich, F. W. Smith, F. W. Wakefield, J. Woodburn, D. MacIntyre, F. C. Summerlin, R. Poire, L. C. Evans, G. Sinclair, T. Shastany, L. Wilkie, M. Felkner, H. Tate (Products B)

SCOVILL MFG. CO. (436)
99 Mill St., Waterbury, Conn.

(Products C)

SELLERS MFG. CO. (104)
Saxapahaw, N. C.

Reps: F. Longcrier, B. E. Jordan, Jr., F. J. Fawcett, H. Stelter (Products E)

SERVO STOP (48)
55 Rue Bravard, Roanne (Loire), France

Reps: M. Steiger, M. M. Rothkopf (Products B)

SHELL OIL CO. (346)
50 W. 50th St., New York, N. Y.

Rep: E. Coldrick (Products C)

SIMPLEX PACKAGING MACHINERY, INC. (121)
31-31 48th St., Long Island City, N. Y.

Reps: E. E. Messmer, J. Sylvester, J. Keenan, G. Cignoli, S. Watson, E. Watson, J. Kelly, G. Wildersheim, H. Weber, F. Czifra, R. H. Freeman (Products G)

SINGER SEWING MACHINE CO. (289)
149 Broadway, New York, N. Y.

Reps: E. L. Ching, J. E. Wertz, W. Ketcham, C. H. Leidig, P. R. Mohney, C. A. Stevens, L. R. Peak, R. Criqui, A. Shenusky, J. Santella, A. Palley, E. Bobonis (Products H)

SMITH, DRUM & CO. (129)
432 W. Allegheny Ave., Philadelphia, Pa.

Reps: R. N. Smith, A. Bagian, A. P. March, W. A. Fuchswanz, Perry Parrott, J. Ballentine (Products F)

SOABAR CO. (82A)
5815 Erdrick St., Philadelphia, Pa.

Reps: T. B. Clute, B. S. Gowdy, C. B. Hutchinson, W. Roberts, D. L. Tamaccio, O. Terran, S. N. White (Products G)

SONOCO PRODUCTS CO. (507)
Hartsville, S. C.

Reps: C. H. Campbell, C. W. White, H. M. Adams, W. B. Broadbent, C. L. Burnham, B. H. Biggs, W. M. Carpenter, E. J. Cotter, W. J. Durkin, O. D. Duckett, O. F. Fayne, W. R. Gray, C. Harper, R. B. Henderson, J. W. Hillsgrove, H. P. LaMarche, G. K. Lewis, W. K. Lewis, Jr., W. R. Peacock, P. F. Williams, J. A. Reagan, Jr. (Products C)

SOUTHERN TEXTILE MACHINERY CO. (275)
2nd and Norton St., Paducah, Ky.

Reps: T. A. Paxton, R. N. Parkin, W. Bryan, R. Shelton, A. George (Products F)

SOUTHERN TEXTILE NEWS (211A)
Johnston Bldg., Charlotte, N. C.

(Products L)

SPECIALTY MANUFACTURERS & SALES CO. (560)
P.O. Box 235, Acworth, Ga.

Reps: J. W. Glaze, J. Kienel, T. Parry, H. May (Products F)

SPEIZMAN CO., INC., MORRIS (170)
508 W. Fifth St., Charlotte, N. C.

Reps: M. Speizman, T. A. Valenstein, J. H. Barnes, A. C. Gregg, M. P. De Leo (Products B, F, G)

STAMPAGRAPH CO., INC. (147)
79 Alexander Ave., Bronx 54, N. Y.

Reps: G. H. Chadwick, B. Chadwick, C. Weilbacher, E. Weilbacher (Products G)

STANDARD-COOSA-THATCHER CO. (317)
Watkins St., Chattanooga, Tenn.

Reps: F. R. Harris, E. S. Davis, D. B. Barlow, R. C. Thatcher, Jr., R. D. Pullen, W. S. Lawson, W. M. Hall, J. H. Clarke, J. A. Patrick, R. Swan, J. O. Foll, M. Lyon, W. T. Warmath, R. G. Miller, J. M. Smith, T. B. Besosa (Products E)

STANDARD YARN MILLS (190)
Cooper Ave. & 83rd St., Glendale, N. Y.

Reps: H. Rosenblatt, A. Nadel, E. H. Ellis, H. James (Products E)

STAROBA INDUSTRIAL RESEARCH CO. LTD. (379)
299 Adelaide St., W., Toronto, Ont.

Reps: R. V. Smith, T. Wilkinson, S. Staroba (Products B, K)

STEEL HEDDLE MFG. CO. (553)
2100 Allegheny Ave., Philadelphia, Pa.

Rep: T. C. Jackson (Products C)

STEELE CANVAS BASKET CO., INC. (40)
199 Concord Turnpike, Cambridge 40, Mass.

Reps: A. E. Pratley, G. L. Whynaught (Products C)

STEINBERG BROTHERS (203)
174 Scholes St., Brooklyn, N. Y.

Reps: H. Steinberg, J. Steinberg (Products B, H)

STERLING ENGINEERING & MFG. CO. (149)
173 Gilligan St., Wilkes-Barre, Pa.

Rep: G. McGee (Products C)

STOP-MOTION DEVICES CORP. (193)
1471 Fulton St., Brooklyn 16, N. Y.

Reps: N. J. Tellerman, G. Connors, W. Chaplin, F. Weston, E. Vossen (Products C)

SUPREME KNITTING MACHINE CO., INC. (451)
94-02 104th St., Ozone Park 16, N. Y.

Reps: S. Mishcon, L. Mishcon, H. Agulnek, I. M. Golden, H. A. Strasburg, B. Narker, A. Malluck, C. Dupuis J. Teitelbaum, J. Radin (Products B)

SYNTHANE CORP. (372)
Oaks, Pa.

Reps: E. E. Smith, H. Widdop, J. K. Johnson, C. B. Moss, J. M. Price (Products C)

SYNTHETIC YARNS, INC. (327)
125 W. 41st St., New York, N. Y.

(Products E)

TALCOTT, INC., JAMES (23)
225 Fourth Ave., New York 3, N. Y.

Reps: E. P. Lewis, S. B. Salvesen, M. C. Spinner, J. A. Zeller (Products L)

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NEW CARPET YARN SPINNER

- Direct sliver to yarn spinning.
- Processing any staple from 2⅜" to 8", alone or in blends, with "Versatex" drafting.
- For yarns up to 3s cotton count.
- Package size 10" x 6½", with a range of spindle speeds up to 3,000 r.p.m.
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UP TO

6 miles

OF KNOTLESS YARN ON THE BOBBIN!

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GUIDE TO EXHIBITORS (Continued)

TANNENBAUM & CO., IRVING (554)
Streets and Knights Rds., Eddington, Pa.

Reps: I. A. Tannenbaum, M. Tannenbaum, H. Teick, A. Nasler, A. Brown (Products E)

TELE-SONIC CORP. (448)
208 W. 27th St., New York, N. Y.

(Products G)

TEXTILE AGE (400)
1 River Rd., Cos Cob, Conn.

(Products L)

TEXTILE INDUSTRIES (106)
806 Peachtree St., N.E., Atlanta, Ga.

(Products L)

TEXTILE MACHINE WORKS (510 & 517)
Reading, Pa.

Reps: R. C. Wetzel, L. R. Thun, R. N. Apprich, E. P. Master, L. C. Scheffey, Jr., R. J. Ryan, R. W. Weaver, E. A. Shoemaker, H. R. Wade, C. R. Moyer, P. Kroener, W. Heckman, W. A. Dufft, H. Wendling, E. Rebmann, G. Henning, E. Paige, H. G. Fiedler, L. T. Yeager, H. Haak, W. Haupt, D. Hehr, D. Heydt, D. McDonnell, R. Rogers, J. E. Kline, L. P. Garrigan, W. Dresher, M. Coudeu, J. Doorlay, E. Frank, F. Hughes, W. Marshall, H. Printz, N. J. Heaslip, B. F. Coile, N. Levin, D. S. Rank (Products B, C)

TEXTILE WORLD (291)
330 W. 42nd St., New York 36, N. Y.

Reps: E. D. Fowle, P. M. Thomas, J. H. Blore, W. G. Ashmore, W. A. B. Davidson, R. W. Pinault, H. J. Bernard, J. P. Yale, T. Macaluso, R. L. Chisholm, R. N. McKelvey, J. G. Sabella, H. C. Harvey, R. H. Burke (Products L)

TEXTILES, INC. (367)
1213 Old York Rd., Abington, Pa.

(Products E)

THREADS, INC. (64)
1006 S. Michigan Ave., Chicago, Ill.

(Products E)

TOMPKINS BROTHERS CO. (450)
623 Oneida St., Syracuse, N. Y.

Reps: W. A. Ingalls, H. A. Fairchild, H. Hitchcock (Products B)

TORRINGTON CO. (301)
59 Field St., Torrington, Conn.

Reps: W. R. Reid, Jr., C. H. Rowe, C. R. Johnson, L. W. Losee, A. V. Maurer, F. A. Howard, W. B. Meeter, D. A. Burghoff, H. S. Gordon, H. D. Blake, G. T. Stanley, H. E. Gosling, C. T. Spalding, W. Myers, R. L. Brace, E. P. Schwarze, J. J. McCaffrey, J. W. Beaber, P. S. Warner, W. A. Patz, H. E. Gosling, Jr., F. G. Stubbs, G. B. Walls, E. W. Pearson, H. M. Deming, L. R. Whitcomb (Products C)

TRICOMA, INC. (178)
7504 Empire State Bldg., New York 1, N. Y.

Reps: W. W. Glocer, C. E. Weinberg, E. Just, U. Glocer, B. Schulz, F. Gariboldi, J. Nussbaum (Products A, B)

TUBULAR TEXTILE MACHINERY CORP. (166)
33-61 54th St., Woodside 77, N. Y.

Reps: E. Cohn, J. Cohn, D. Foreman, J. Sasson, L. Rothenberg (Products F)

TURBO MACHINE CO. (59)
Lansdale, Pa.

Reps: E. J. Berger, B. C. Hall, F. Huguenin, P. Wenhold, W. K. Wyatt, J. R. Brownell, E. Hughes, M. M. Lihn, G. Brewin (Products F)

TWITCHELL, INC., E. W. (144)
2801 N. Third St., Philadelphia, Pa.

(Products G)

UNDERWEAR INSTITUTE (10)
468 Fourth Ave., New York, N. Y.

(Products L)

UNION SPECIAL MACHINE CO. (458)
400 N. Franklin St., Chicago, Ill.

(Products H)

UNITED ELASTIC CORP. (90)
Easthampton, Mass.

Reps: R. A. Waite, W. E. Dalby, E. R. Boehm, G. B. Weidhaas, D. B. Cameron, F. L. Dorr, E. E. Caldwell (Products E)

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UNITED SHOE MACHINERY CORP. (438)
140 Federal St., Boston, Mass.

(Products G)

U. S. BLIND STITCH MACHINE CO. (564)
312 Seventh Ave., New York, N. Y.

Rep: J. Bruno (Products H)

U. S. HOFFMAN MACHINERY CORP. (441)
270 Park Ave., New York, N. Y.

Reps: L. Lichtman, H. Rosenblatt, J. G. Weingarten (Products F)

UNITED STATES HOSIERY CORP. (482)
350 Fifth Ave., New York, N. Y.

Reps: J. N. Bogoff, H. Booton, J. MacEachern (Products B)

U. S. RUBBER CO. (315)
Lastex Yarns & Rubber Thread Division
1230 Avenue of the Americas, New York, N. Y.

Reps: M. E. Bliss, H. B. Cobb, W. J. Connelly, A. R. Engel, W. F. Giddings, P. J. Regan, H. Young (Products E)

U. S. RUBBER CO. (280)
Textile Division
1230 Avenue of the Americas, New York, N. Y.

Reps: W. E. Clark, V. C. McQuiddy, Jr., J. B. Jackson, J. Blum, B. W. Wiesen, R. R. Hampton, R. P. Clark, W. H. Bric, Jr., R. W. Jennette, W. D. Johnson, J. H. Shaw, S. K. George, J. M. Pope, R. S. Gibson, J. W. Reid, A. K. Brown, H. E. Anderson, W. J. McCarty (Products E)

UNITED STATES TESTING CO., INC. (462)
Hoboken, N. J.

Reps: F. P. Brennan, C. M. Thomas, F. C. Nave (Products J)

U. S. TEXTILE MACHINE CO. (181)
411 Gilligan St., Scranton, Pa.

Reps. A. W. Thomas, Jr., P. J. Thomas, F. C. Nave (Products A)

UNIVERSAL WINDING CO. (219)
Providence 1, R. I.

Reps: R. Leeson, R. S. Pennock, J. W. Stribling, J. R. Breen, F. P. Barrie, J. A. Freed, E. Stowell, K. H. Gibson, C. Dudzik, T. L. Cotter, P. P. Johnson, W. V. Goodhue, J. V. Keith, J. B. Howarth, A. D. Weston, J. A. Nasmith, H. H. Richardson (Products E)

UTICA NOVELTY & MILL SPECIALTY CO. (160)
2145 Dwyer Ave., Utica, N. Y.

Reps: J. A. Firsching, Jr., J. A. Firsching 3rd, D. Firsching (Products H)

VALDESE MFG. CO., INC. (545)
Valdese, N. C.

Reps: F. Crews, H. Boshamer, E. M. Spencer, H. Knapp (Products E)

VEEDER-ROOT, INC. (537)
70 Sargeant St., Hartford, Conn.

Reps: A. E. Kallinich, G. L. Logan, T. Nelson, F. J. Swords, R. E. Walker, R. G. Perfect (Products J)

VICTOR RING TRAVELER CO. (42)
20 Mathewson St., Providence, R. I.

Reps: H. E. Robbins, A. F. Howard, B. H. Waterman, E. L. Connor, E. Cranshaw (Products C)

WALTON LABORATORIES, INC. (446)
1186 Grove St., Irvington 11, N. J.

Reps: J. Feldermann, B. Lewis, G. Lyons (Products K)

WESTERN PRINTING CO. (386)
34 Hubert St., New York, N. Y.

Reps: N. A. Bruml, J. Frazier (Products G)

WESTINGHOUSE ELECTRIC CORP. (76)
3 Gateway Center, 401 Liberty Ave., Pittsburgh, Pa.

Reps: P. S. Holstein, F. T. Benner, A. J. Danni, D. B. Cullis (Products K)

WHITIN MACHINE WORKS (425)
Main St., Whitinsville, Mass.

Reps: J. H. Bolton, H. Moss, R. Waters, G. F. McRoberts, C. May (Products B)

WILDMAN JACQUARD CO. (250)
Subdivision of Draper Corp.
Norristown, Pa.

Reps: C. F. Miller, R. C. Dott, B. R. Ebersman, J. Tittl, J. Brennan, F. Wildman, Jr., J. Olachea, F. Beeton (Products B)

WILLCOX & GIBBS SEWING MACHINE CO. (353)
214 W. 39th St., New York, N. Y.

Reps: N. Wonnacott, A. Miller, C. Haviland, Jr., H. Russell, A. Selby, J. Fiola, F. Perkins, L. Connolly, E. LeFevre, H. Komski, G. Tobey (Products H)

WOVENCRAFT LABELS (164B)
1199 Broadway, New York, N. Y.

Rep: R. Baum (Products G)

NO NEED TO GAMBLE WITH PROFITS

MODERNIZE YOUR SACO-LOWELL F-7 FEEDERS NOW WITH THESE 7 *NEW* SUB ASSEMBLIES

ADJUSTABLE GRID BARS FOR DOFFER ASSEMBLY

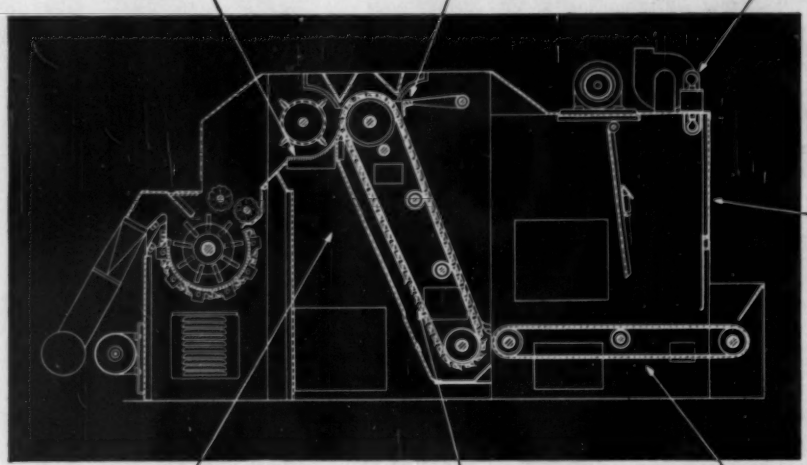
Adjustable cheeks support 16 grid bars. The new cheeks make it possible to arrange the bars at the settings and angles needed for more exact control over quantity and quality of waste extraction.

HIGH SPEED COMB

The aluminum saw-tooth high speed comb, operating at 250 strokes per minute, doubles the opening action on the stock. The comb, secured to its shaft with clamping screws instead of pins, is easily installed.

AUTOMATIC SIGNAL LIGHT SYSTEM

New signal lights, installed in the top girt, eliminate all guess work by indicating which machine should be fed. A third light is located inside the hopper for visual inspection of stock through a transparent window.



HOPPER INSPECTION WINDOW

A clear plastic window, 11½" x 14½" is installed in front of the feed hopper to enable the operator to see the level and condition of stock while the F-7 Feeder is in operation.

NEW HOLLOW STEEL CROSS SHAFT SLEEVE

The protecting hollow steel sleeve encloses the cross shaft, eliminating periodic hand cleaning at this point.

NEW LIFTING APRON

Leather strips extending beyond the ends of the slats of both the lifting and bottom apron eliminate the possibility of cotton falling off the sides of aprons. There is no need for flanges on the apron pulley.

NEW BOTTOM APRON

The new style bottom apron slats are pyramid shaped so stock will not cling when presented to the lifting apron.

The rising use of machine picked cotton has placed heavy demands on the opening room. In many cases, existing equipment has proven inadequate in coping with the added leaf, stalk and seed fragments. To insure that the first breakup of stock, so important when processing mechanically harvested cotton, will be as complete as possible, we offer these Seven New Component Assemblies for the F-7 Feeder.

The improved breakup with modernized F-7 Feeders makes the major cleaning job far easier for the rest of the Opening and Picking line, as well as the Cards.

SACO-LOWELLIZE TODAY FOR MORE PROFIT TOMORROW

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N.C. Sales Offices CHARLOTTE GREENSBORO GREENVILLE ATLANTA

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Do You Force Employees To Lie?

- How you go about it and what you do about it are the keys to whether you get the truth, evasions, or outright lies when you question workers about things that have happened on the job

- Here are some do's and don'ts that can help you become more effective as a fact-finder and that may encourage employees to volunteer the truth

By **WILLIAM G. SHEPHERD,** Research Institute of America

A fork-lift-truck driver crushed and spoiled $35 worth of finished fabric when he hit the door jamb with his load as he was passing through.

"Fire the so-and-so!" said the second hand.

"Give him a medal!" said the overseer. "That guy is honest. He could have stacked his load in the storeroom and no one would have been the wiser until the order was made up. Instead he told us, and you immediately jump to the conclusion he's been careless. Let's find out more about it, why he hit the door.

"Looking at this practically, it costs about $200 to train a new fork-truck operator and we'd have a less experienced man than we have. This guy has worked this job for 13 years, and this accident was his first mishap."

Investigation showed that an empty bobbin box had gotten kicked out into the aisle. The driver swerved to miss the box and hit the door jamb.

You Make It More Difficult—or Less

In this case, the "crime" was voluntarily "confessed." If the facts had to be sought, which of these two supervisors would be more likely to find them out? Obviously, the overseer would get the truth; the second hand would have a much harder time and perhaps force the employee to lie.

Manner and method are the keys. How you respond to unpleasant situations and how you go about finding out about them and correcting them make much of the difference in whether you invite facts or falsifications, useful data or useless distortion.

Look at these typical supervisors who, by their own acts, tie their own hands as fact finders. See whether your particular approach is mirrored in one of theirs.

Nolan is overseer of carding in a South Carolina mill. He's an aggressive fellow who likes to get things done in a hurry. When something goes wrong, he barges out with fire in his eye to see that "the guilty person is punished." Nolan complains that he always has a "danged devilish time" trying to learn who the responsible party is and that he gets evasive answers and "I don't knows" to the simplest kinds of questions.

Crawford blossoms under praise. As a second hand in a spinning mill, he has made it plain many times by his previous behavior that when he asks for comments, what he really wants is sugar coating. He wants to be told, "You did fine." Since he's the boss, that's what he is told—at least, by anyone who wants to keep in his favor. So he has a real problem when he must put his finger on an unpleasant fact.

Tom supervises loopers in a hosiery mill. To pin down faulty looping that had passed inspection and created a real ruckus, Tom went down the line and asked each girl if she knew who had done the work. He forced every one of his workers to lie in order to protect a fellow worker.

Elbert trips himself up every time there's a crisis in the weave room where he is second hand, and he doesn't know why. What he does is pronounce judgment before he asks the witness (or the defendant) to testify. Here he is in action:

"I don't think there's anything worse than carelessness. It's unforgivable. Now, who got the oil on that yarn?"

There's no wonder that Elbert's efforts seldom produce an admission by an employee who has any chance to avoid detection.

How To Hit the Truth Target

Is it necessary for supervisors to face such blank walls when they are trying to find out what went wrong? Not at all. There are simple, reliable rules for removing the stumbling blocks between you and the facts.

1. Develop a tolerance for justifiable failure. This rule doesn't mean you should become lax and blink at every fault but that you should not lose sight of the fact that things can go wrong and that people with the best of intentions can make mistakes.

A moment's reflection will, in all probability, remind you of occasions where you yourself were doing your level best, concentrating on the job, trying to keep quality high—and still you made a mistake. It made a lot of difference to you then if your superior had developed a "tolerance for failure." It also made it possible for you to admit the mistake and get it corrected without fear of losing your head in the lion's mouth.

2. When you're mad, don't proceed until you can feel sure there's no madness in your method. This approach is best in all supervisory situations, but especially when you're asking subordinates to tell you the truth. Few

CONTINUED ON PAGE 248

"CLICK" lubrication starts when your machines start!

ALEMITE OIL-MIST AUTOMATIC LUBRICATION

provides constant, uniform, foolproof lubrication— at savings up to 90%!

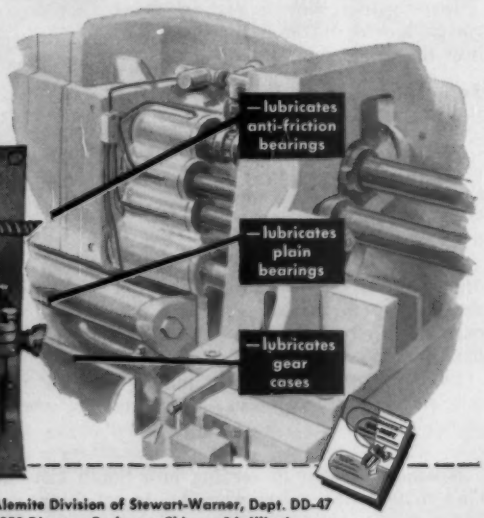
Alemite Oil-Mist *atomizes* oil into tiny, airborne particles that are distributed to bearings through tubing. It bathes all bearings with a cool film of clean oil . . . maintains uniform oil film regardless of variations in loads, temperature and speed. Simple, continuous, fully automatic. Eliminates the waste and uncertainties of the "human element" in lubrication. Uses up to *90% less lubricant* than ordinary lubrication methods!

Lubricates any bearing on any machine with one of three types of fittings:

Mist fittings for roller, ball, needle—or any anti-friction type of bearings.

Spray fittings for open and enclosed gears and chains.

Condensing fittings for plain bearings, slides, ways, vees, cams, and rollers.



8 Advantages of the Alemite Oil-Mist System

1. Continuous lubrication. Deposits fresh, clean film of oil on all surfaces of all bearings.

2. Fully automatic. Starts and stops with operation of machine switch.

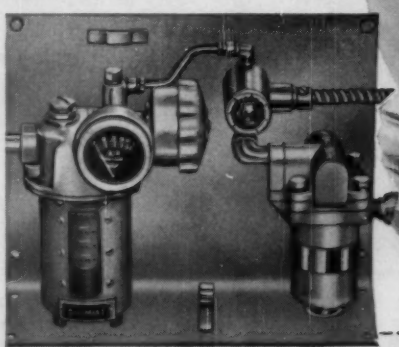
3. No guesswork. Bearings can't be overlooked, or over-lubricated!

4. Reduction of bearing temperatures. Acts as bearing coolant. Reduces bearing temperatures as much as 20°F.

5. Fewer types of oil. Reduces number of oils that must be stocked, handled and applied.

6. Elimination of downtime. All bearings are constantly lubricated while machines continue to operate.

7. Extension of bearing life. Life of grinding machine bearings have been extended from 400 to 7,000 hours!



8. As high as 90% less oil consumption. Usually consumes about 1/10th amount used by any other oiling method.

Mail coupon for Oil-Mist demonstration and information

ALEMITE
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Division of STEWART-WARNER CORPORATION

STEWART SW WARNER

Alemite Division of Stewart-Warner, Dept. DD-47
1850 Diversey Parkway, Chicago 14, Illinois

☐ Please send me a FREE copy of your new and complete Oil-Mist catalog.

☐ Please have your Alemite Lubrication Representative arrange a no-obligation demonstration.

Name .....

Company .....

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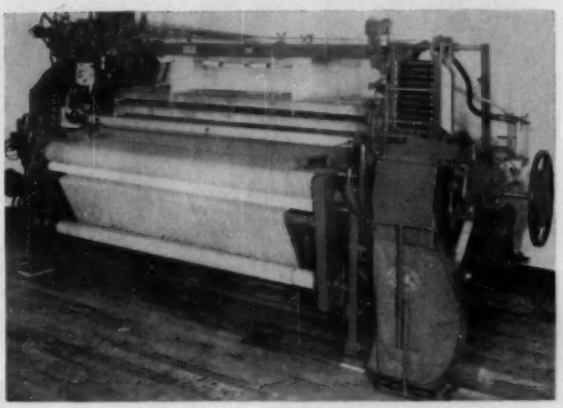
Automatic Pick-and-Pick Loom



An automatic pick-and-pick loom, PAPA, has been announced by Crompton & Knowles Corp., Worcester, Mass.

Some of the operating advantages of this 4x3 shuttle-box loom in weaving men's and women's wear in all-wool, worsted, blends, upholstery, and other fabrics are:

1. The elimination of lost time for filling replenishment will help increase production.
2. The three-cell shuttle box at the drive end gives a much wider range of box-pattern possibilities.
3. Either four or five shuttles can be used, and better blending is made possible on a wide range of fancy fabrics woven on a pick-and-pick automatic bobbin-changing basis.
4. Waste is reduced because smaller bunches can be used on the bobbin.
5. Drag-ins are practically eliminated.
6. The loom can be run automatically on regular 4x1 and 4x2 box patterns in addition to pick-and-pick without major conversion, and it can also be run nonautomatically with the feelers stopping the loom before the filling runs out on 4x3 box weaves that can't be run automatically.

Mechanical features of the PAPA loom include:

1. Automatic bobbin changing with a split box at the drive end permits two shuttles to be dwelled in the lower cells while a transfer is being made on a third shuttle in the top cell.
2. A bank of four feelers at the head end permits the use of two or more different types of feelers at the same time. With this arrangement, electromechanical feelers can be used on metallic yarns and all-electric feelers used, if desired, for other yarns.
3. The moving box and transfer hammer contribute toward a positive filling transfer.
4. A plunger-type stop motion for the top shuttle stops the loom if the shuttle is not in proper position for the transfer. This motion will also stop the loom during normal operation if the shuttle in the top cell is not properly boxed.
5. A scissors-type thread cutter cuts the filling at the shuttle eye and eliminates the long tail on the outgoing bobbin to reduce the chance of a drag-in.
6. A vacuum-operated suction tube carries the cut end of filling to a filling-waste receiver at the end of the loom.
7. Two sets of filling placers and thread hooks, one on each side of the magazine, push and place the filling of the new bobbin in a position to facilitate early temple cutting.
8. A double-acting pump mounted on the loomside and actuated by a connection to the lay provides the vacuum and the air jet.
9. Temple-cutter construction made possible by the combination of the vacuum and jet filling-control system permits locating the temple almost in contact with the reed. This arrangement holds the cloth better and permits earlier cutting of the filling.
10. Bobbins are thrown forward between the upper and lower box at transfer by a moving deflector, and a closed chute funnels the empty bobbins into a bobbin bag that holds about 200 bobbins.
11. Indications from both transferring and box mechanisms are simple and eliminate critical timing problems. All box-pattern indication is separate from harness-pattern indication, and long harness chains are not required for synchronization.
12. Since no dead picks are involved on the loom, no problems are created when it is to be run under a jacquard.

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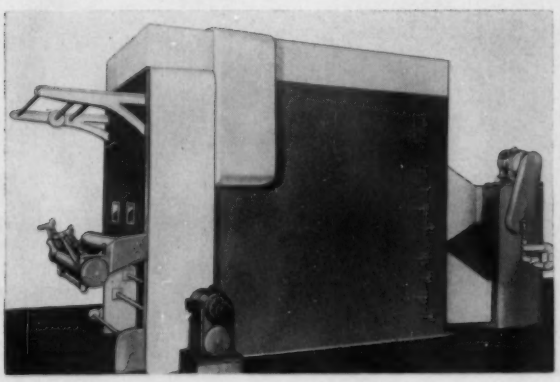
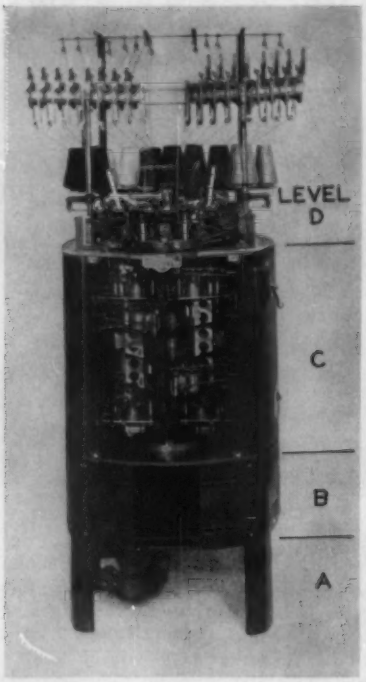


Continuous Steam-Sponging Machine

A machine that will produce up to 25 yds. per min. of steam-sponged woolen goods or fabrics made of various fiber blends has been marketed by David Gessner Co., 41 Fremont St., Worcester, Mass.

The machine is said to eliminate the double handling necessary when goods are batch-steamed because each yard of fabric is exposed to the same amount of steam. The cloth is moved through the steaming and the drying area in a relaxed condition so that uniform shrinking can occur.

Circle T-2 on Reader-Service Card



Circular Hosiery Machine

The Reading CK-A circular knitting machine for men's and boy's hosiery is now being produced by Textile Machine Works, Reading, Pa. The machine has four feeds and produces standard hosiery patterns, inlaid patterns, floats, spiral work, hold-stitch patterns, and a variety of plain and striped goods.

The machine has been designed with the operating parts at several separate levels to permit easy adjustment and maintenance. The bottom level *A* houses the motor drive mechanism; and the second level *B* contains the clutch, cylinder drive gearing, and clutch shifting mechanism.

The third level *C* has five sublevels with the jack cylinder extending through all five levels. Two pattern-selecting units are on each level. One unit selects jacks when the needle cylinder moves in one direction, and the other unit selects jacks when the cylinder reverses.

Each one of the four lower sublevels works with a knitting feed to select needles to take yarn at that feed. The fifth sublevel has a jack cylinder with jacks for selecting needles to make the heel and toe.

The fourth level *D* contains the knitting cylinder, four stitch-cam assemblies, the sinker ring and sinker cap, and an extra finger for rubber yarn. Each feed has a yarn-finger drum and four yarn fingers mounted on the sinker ring. The binder mechanism has individual cutting and clamping devices for the yarns at each feed.

The suture line between pattern areas is made by devices known as knockers that send the leading needle to the tuck level to improve the strength and appearance of the suture line. Electric stop motions detect crooked or overloaded needles, yarn failing to cut at the binder, and broken yarns.

Production on the machine is 3 doz. pairs of 168-needle argyle socks per 8-hr. shift and 5 doz. 84-needle argyle socks per 8-hr. shift. It is estimated that one knitter can look after 16 168-needle machines or 12 84-needle machines, while one fixer looks after 50 machines.

Circle T-3 on Reader-Service Card

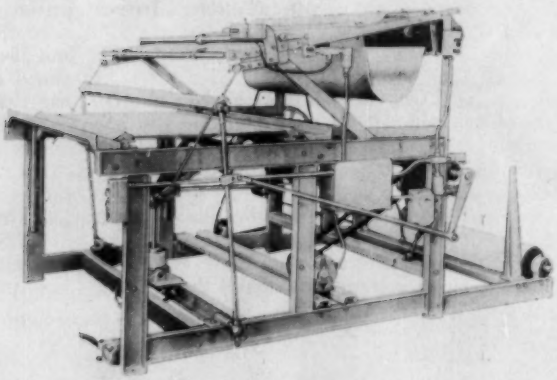
Cloth Folder

A completely redesigned drive, greater cloth capacity, and fewer parts are features of a cloth folder just introduced by Curtis & Marble Machine Co., 72 Cambridge St., Worcester, Mass.

The machine is 15% shorter than previous models and requires only a ¾-hp. motor to operate it.

The folder operates well at speeds up to 150 yds. per min. The table is air-operated, and there is an automatic seam stop and a dynamic brake.

The machine is self-contained and has a power let-off. All bearings are antifriction. The 50-in. machine requires a space 8 ft. 8 ins. long by 6 ft. 6 ins. wide, with 5 ft. of clearance overhead.



Circle T-4 on Reader-Service Card

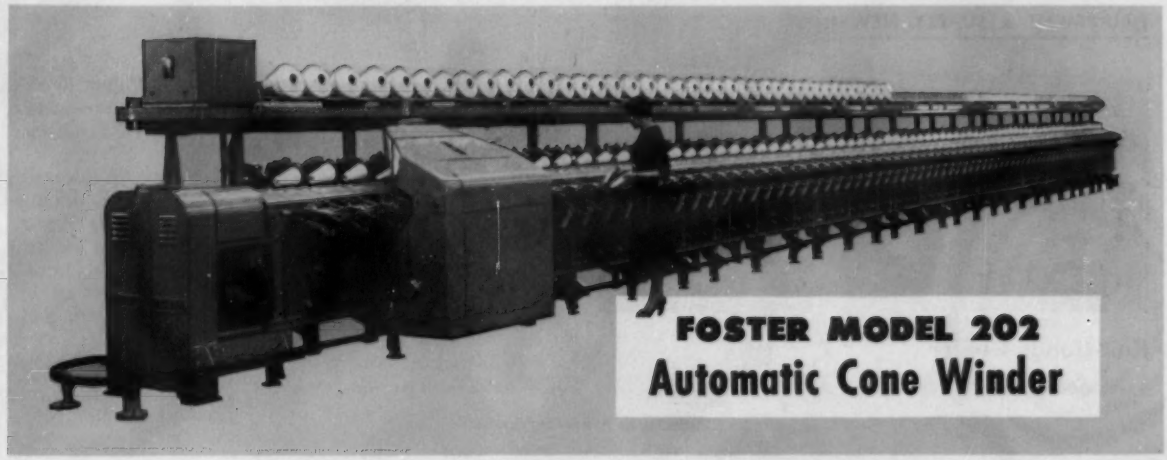
Textile Motors

Lint and textile-mill dust pass readily through textile motors being manufactured by Century Electric Co., 1806 Pine St., St. Louis 3, Mo. The bearing bracket is curved for rigidity, and this shape guides lint-laden cooling air through the smooth ventilating passages.

The ball bearings are lubricated at the factory, and the lubricant will last several years without being replaced. However, the bearings can be relubricated when necessary.

The winding has heat-curved plastic insulation arranged so that air passes over it to keep it cool. The rotor iron is keyed and is assembled under pressure to prevent rotation. The motor is quiet starting and quiet running.

Circle T-5 on Reader-Service Card



FOSTER MODEL 202
Automatic Cone Winder

See It in Operation at Knitting Arts Exhibition Week of April 29 – Booths 82-84 and 99-101A Just to Left of Main Entrance

ASK FOR PRODUCTION & OPERATING COST STUDY. We expect to have available at the Show, for the first time, a time and operating cost study on a mill installation. Ask for a copy. You'll be impressed with the increase in production and the decrease in operating cost which this machine effects.

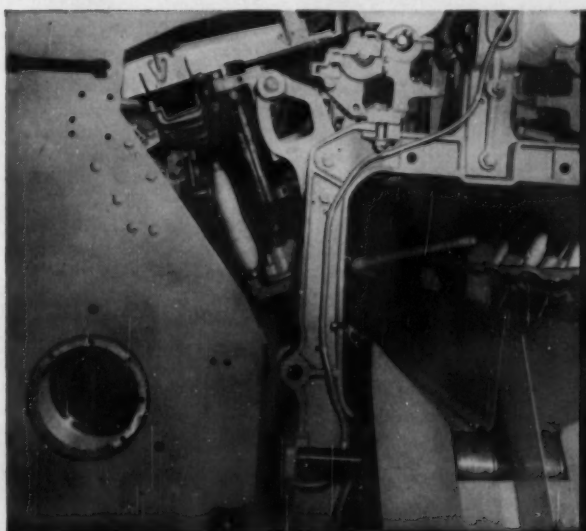
ASK ABOUT IMPROVEMENTS IN DESIGN, including new head end assuring more positive control, central oil mist lubrication, knotters for a wide range of yarns, faster knot tying, and micrometer adjusted slubcatchers.

All operations on the Foster Model 202 are automatic, except the donning and doffing of cones and the positioning of full bobbins for the automatic knot tier.

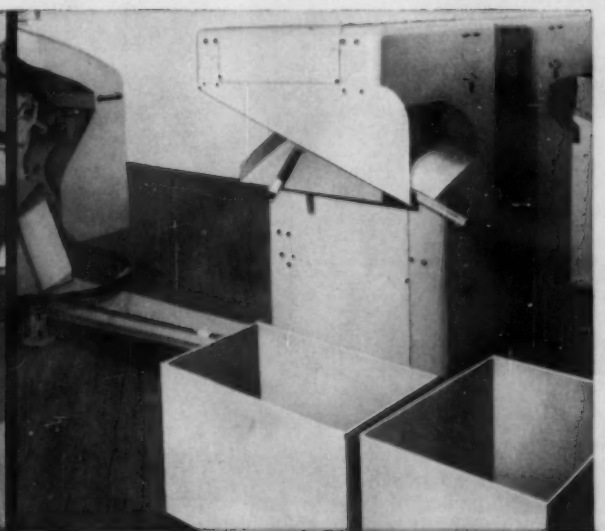
If you don't already have tickets for the Knitting Arts Exhibition, ask us for as many as you want. No obligations.

FOSTER MACHINE COMPANY
Westfield, Massachusetts, U. S. A.

Southern Office — Johnston Bldg., Charlotte, N. C. • *Canadian Representative* — Ross Whitehead and Company Limited, 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont. • *European Representative* — Muschamp Textile Machinery Limited, Keb Lane Bardsley, Oldham, England



Showing automatic donning and doffing of bobbins.



Showing automatic sorting of bobbins.

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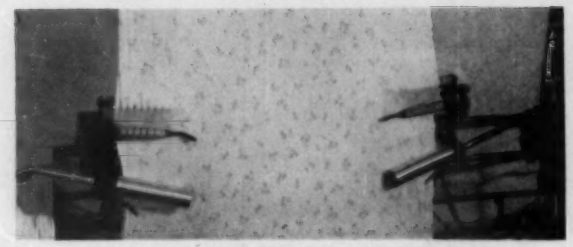


Knit-Goods Guider

A modification of air- or electrically operated guiders that permits successful automatic feeding of knit goods into tenters or other equipment has been announced by Guider, Roll & Service Co., P. O. Box 3747, Peninsula Station, Daytona Beach, Fla.

The tendency of easily extensible fabrics to ride out of conventional guiders has been overcome by driving the front rolls of the guiders through a jack shaft. Power is obtained through a belt running from a pulley on the lower roll of the guider stand to a pulley on the front-roll jack shaft. The jack-shaft pulley may be varied in size to synchronize the driven guider-roll speed with that of the cloth passing through.

An alternative variable-speed drive through a flexible shaft to the guider roll is available.

Circle T-6 on Reader-Service Card

High-Speed Drawing Frame

A simplified high-speed drawing frame has been announced by Medley Mfg. Co., Inc., 400 32nd St., Columbus, Ga. Recommended speed is from 250 to 275 ft. per min., but the frame can run faster if desired.

The frame is available in 16- and 18-in. gauge for 12-, 14-, 15-, and 16-in. cans. A 20-in.-gauge frame will be produced on order. Features include:

Grease-sealed antifriction metallic or cushion top rolls and metallic or common bottom rolls

Antifriction coilers for 12-, 14-, and 15-in. cans; 18-in. coilers will be produced on order

Antifriction, self-aligning bearings on coiler drive shaft

Sealed compound gear mounted in double ball bearings

Calender rolls mounted in needle bearings with Alemite fittings

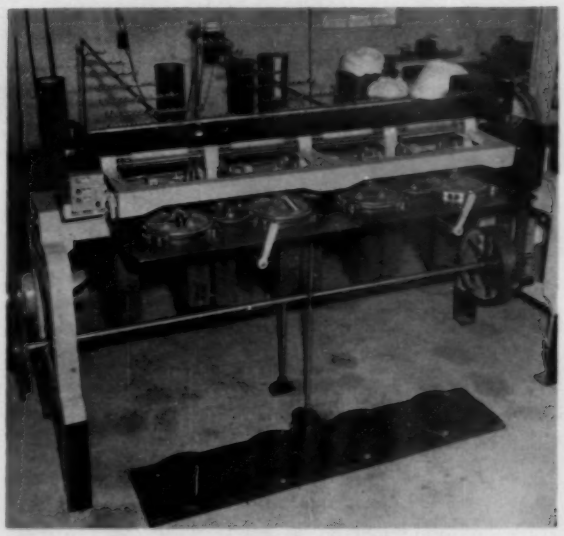
Hardened and ground studs mounted on sealed ball bearings for head-end gearing

Predetermined-yardage counter that knocks off full cans

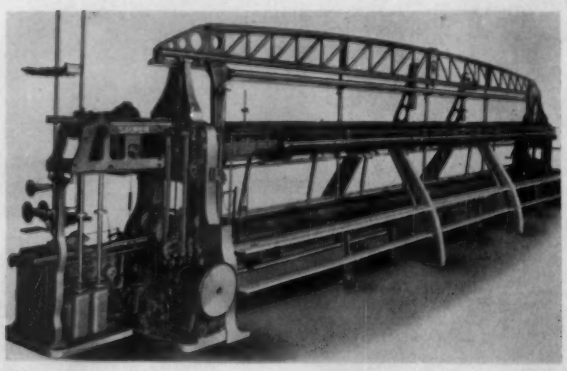
Sealed antifriction hold-down and outboard bearings

Evener roll that turns top and bottom rolls at different peripheral speeds to even the weight of the sliver before it enters the drafting zone

Electric stop motion



Circle T-7 on Reader-Service Card



Embroidery Machine

The automatic-shuttle embroidery machine, Model 25-55, made by Adolph Saurer Ltd., Arbon, Switzerland, has a shuttle that accommodates bobbins that hold about 15% more yarn than previous models. The new shuttle also gives the operator a better view of the shuttle.

The weight of the shuttle drive has been reduced compared to older models with a lighter casting for the driving crank. The fabric frame is made from profile steel tubing. The improved frame construction has eliminated the lower horizontal frame drive and reduced wear on the gearing.

An adjustable side-span stick holder can be expanded to within a range of about 12 ins. on each side to give the fabric length variation of about 24 ins. Two lubrication points placed under a protective cover oil the small shafts for the needle, borer, longitudinal shafts, and the small and large feeders.

All bearings have self-lubricating bronze bushings, and all gear rack-guide rollers have needle-roller bearings.

Circle T-8 on Reader-Service Card

Stainless is used extensively in the backwasher shown at left, and the scouring machine below, both manufactured by C. G. Sargent's Sons Corporation, Graniteville, Mass.

HOW

stainless

HELPS PRODUCE BETTER YARNS AT LOWER COST

Here are some of the reasons why *stainless* is the best friend the textile mill ever had:

Resists Corrosion — Lasts Longer — Stainless just about never wears out—and its smooth, rust-free surface resists the corrosive bite of most chemicals used in textile manufacture. The backwasher and scouring train illustrated, for example, use stainless wherever liquors or chemicals come in touch with metal. Their manufacturer says, "The caustics and acids used, particularly in scouring heavy grease wools, are pretty strong stuff—few other metals would stand up under such exacting conditions."

Stainless Babies Fibres — Stainless presents a smooth, non-snagging surface to stock in transit through dryers —especially important with cashmere and other soft, tender fibers. And stainless is just as vital for parts such as teeth and rakes in openers and pickers. "For stainless helps do a more thorough preparatory job without damage to fibers—makes for better, easier, far more economical production of first quality yarns." And, of course, stainless is about the easiest material to keep clean that you can find.

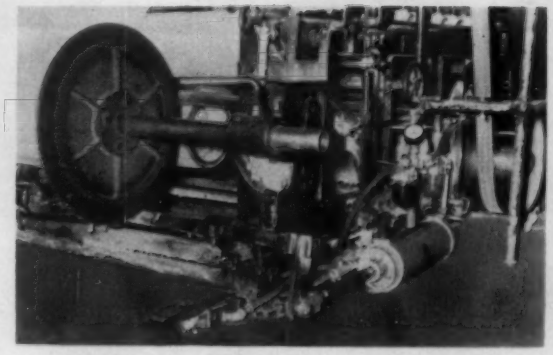
There's a lot more to the story of how stainless means greater efficiency—greater profits in the textile mill. Much of it is contained in Crucible's 32-page booklet, "Making the Most of Stainless Steels in the Textile Industry." Write for your free copy today.

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

For more data, write this page number on Reader-Service card. →



Presser Roll for Slashers

An air-pressure control system for slashers that creates even pressure on every strand of yarn on the beam being wound is being manufactured by Livingston & Haven, Inc., P. O. Box 808, Charleston, S. C.

The system can also be applied to warpers.

The application of constant air pressure on the presser roll makes it possible to put more yarn on each yarn beam. The system can be applied to old or new slashers.

Other features of the system are:

1. Slasher production can be increased 15 to 35%.
2. The system requires little maintenance attention.
3. Constant pressure lessens the possibility of yarn breakage and prevents tangled ends.
4. The pressure can be adjusted to a wide range of yarns.
5. Doffing is faster because the presser roll is raised and lowered automatically; the speed of the presser roll in raising and lowering is easily adjusted.

Circle T-9 on Reader-Service Card

Controller for Card Drives

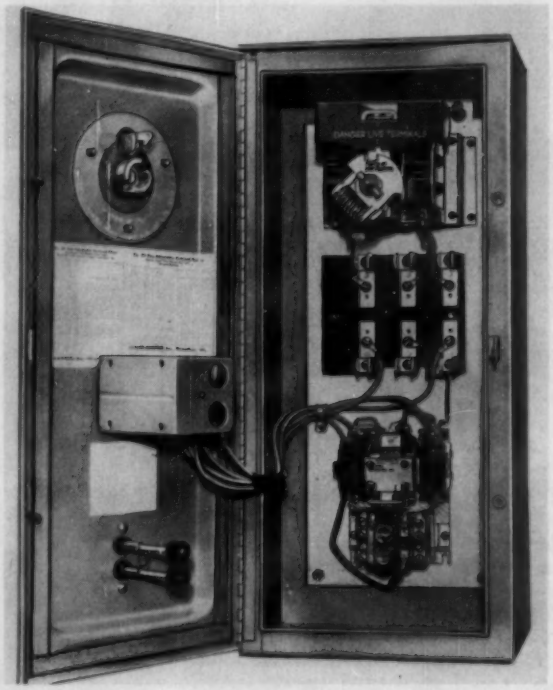
A controller for individually driven cotton cards is announced by Cutler-Hammer, Inc., 315 N. 125th Street., Milwaukee, Wis.

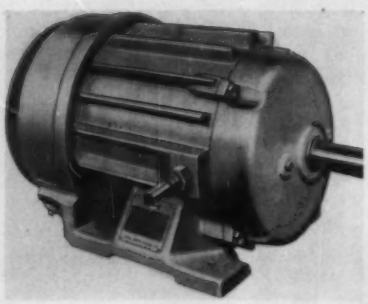
Long-time-lag heater coils are coupled with overload protection to match the special motors used on card drives for complete protection during running and jogging and for the longer time required to bring high-inertia loads up to speed.

The drum-type reversing switch is rated at 5 hp., 440 v. It provides reverse operation for grinding the cards and is electrically interlocked with a three-pole magnetic contactor so that accidental reversing is impossible in forward drive.

The controller is available in NEMA sizes 0 and 1.

Circle T-10 on Reader-Service Card



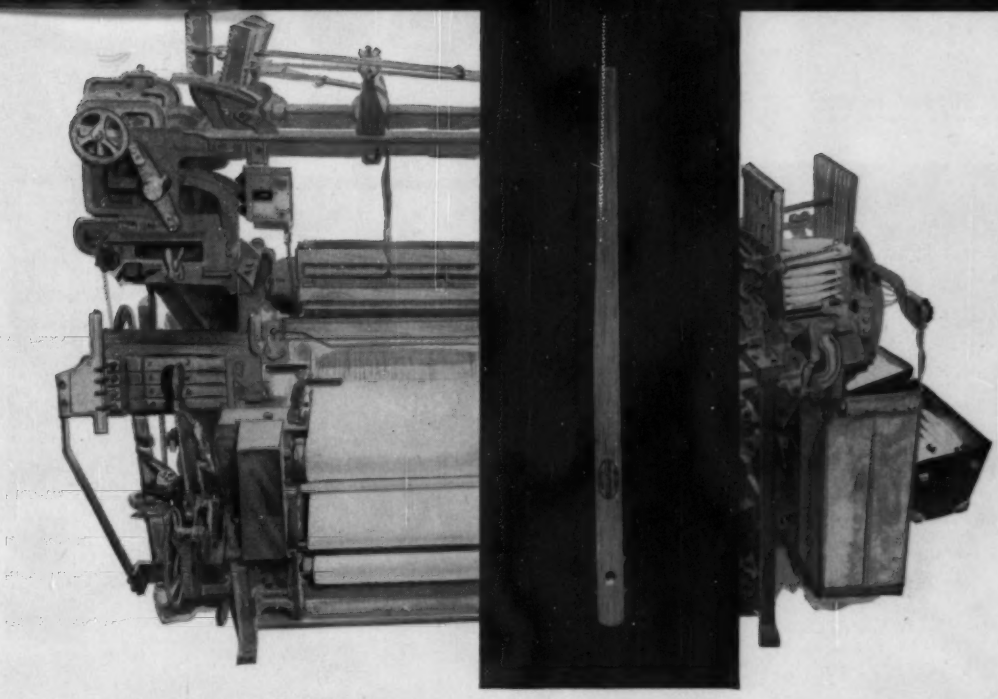


Self-Cleaning Motors

Self-cleaning textile motors of totally enclosed fan-cooled construction are being manufactured by Louis Allis Co., 427 E. Stewart St., Milwaukee 7, Wis., in the new NEMA dimensions. The motors, called Clean-Flo, are completely interchangeable with existing NEMA motors to insure maximum flexibility.

Versatile mounting permits the motors to be built with the shaft brought out through the fan end as an alternate construction. This mounting allows the motor to be mounted in the aisle but directs the air flow away from the driven machine.

Circle T-11 on Reader-Service Card



THE RIGHT PICKER STICK for EVERY loom application

No matter what you are weaving you are sure to have the best picker stick for your requirements if you select from the STEHEDCO line. Manufactured under complete Quality Control at our modern plant, you are guaranteed the very best grade picker sticks obtainable, at reasonable prices. Ask to have one of our Stehedco Sales Engineers give you the benefit of his wide experience and help you to select the best picker stick to suit your particular needs.

- **TEMPERED HICKORY**
  The best grade of hickory is "Tempered" to assure maximum strength, whip and resistance to warping. This is the traditional picker stick *for any* loom application.
- **REINFORCED DURAWELD**
  A laminated picker stick, permanently bonded, reinforced by the addition of two veneers of vulcanized fiber. DURAWELD is highly recommended for Draper high speed looms.
- **LIDEN**
  A LIght DENsity stick of laminated beech veneers, LIDEN is ideally suited for all Draper and lighter Crompton & Knowles looms.
- **VARDEN**
  A VARiable DENsity stick of laminated beech with added veneers at the tip and butt ends. A strong, flexible stick specifically designed for box looms with loose pickers.
- **MEDEN**
  A MEdium DENsity stick made of beech veneers, MEDEN is a high quality, extremely tough picker stick capable of withstanding heavy loom conditions.
- **STEDEN**
  A HIGH DENSITY stick of maple veneers with great durability. This is the *finest* of the STEHEDCO line and is recommended for use where the *very best* picker stick is required.

P-5707

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SOUTHERN SHUTTLE DIV.
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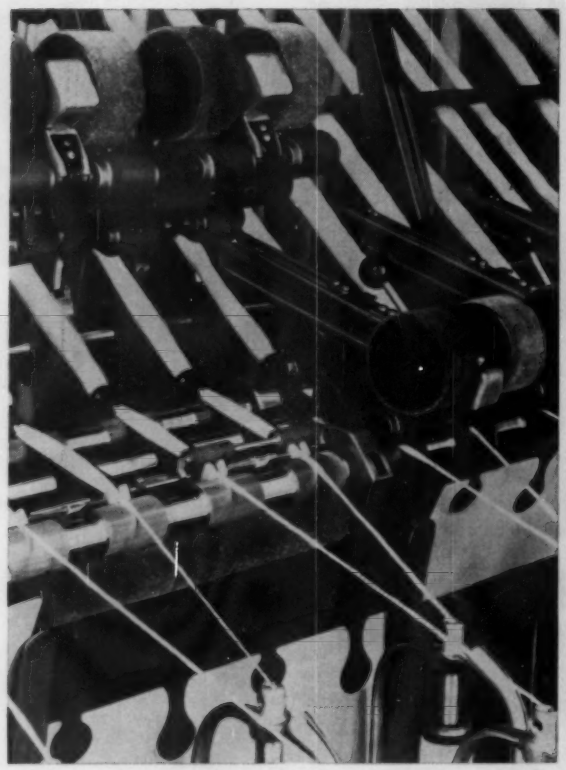
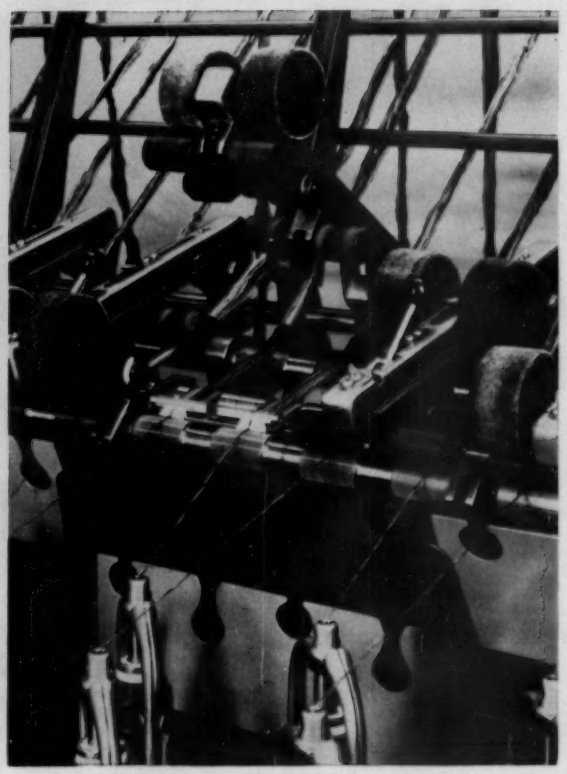
TEMPERED

QUALITY Stehedco CONTROL

STEHIDE





Two-Way Drafting System

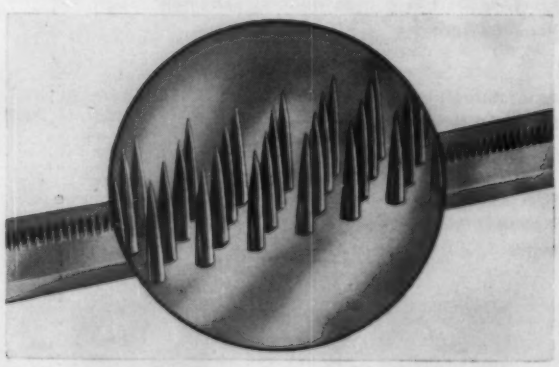
A drafting system for both the M. S. 2 roving frame and the M. R. 3 spinning frame, which can be easily adjusted from a slip-draft arrangement for 3- to 8-in. staple to a two-zone system for 2⅜- to 3-in. staple, has been announced by Platt Bros. (Sales) Ltd., Oldham, England. The system, called Versatex LS, enables the short fibers present among the long fibers to be drafted efficiently.

The drafting arrangement consists of a front pair of drafting rolls and a back pair of feeding rolls. Between these rolls is a special pair of rolls that drive the apron. The apron, which has tension applied by an individual cradle, passes over a stationary bar located close to the front rolls to provide maximum fiber control.

For slip drafting, the second top (control) roll is adjusted by altering its position radially in relation to the second bottom roll in order to change pressure on the apron. For two-zone drafting, the second stop roll is set directly over the second bottom roll.

The photo at the left shows the system in the two-zone drafting position, and the photo at the right shows it in the slip-draft position.

Circle T-12 on Reader-Service Card



Close-Set-Pin Rolls

Pin rolls and bars with pins set closer than formerly have been introduced by Robert A. Main & Sons, Inc., 257 Pascak Rd., Paramus, N. J. The heavy pin concentration perforates textile material with many holes in a small area. Rolls with the new pin arrangement are available in various diameters and up to 24 ft. long.

Circle T-13 on Reader-Service Card

The New Liquid Cationic Resinous Fixing Agent

SOLIDOGEN® LT-13

Solidogen LT-13, the new cationic fixing agent, improves the wet fastness of direct and developed colors on cotton and rayon. It is easily applied in the box or pad, or in combination with UF or MF resins, to improve fastness to perspiration, hot pressing and water. It is also effective as a fixing agent when added to the last rinse, after soaping, to prevent bleeding of screen or roller printed fabrics.

In combination with copper salts, Solidogen LT-13 improves the wash fastness of yarns and fibers dyed with selected direct colors. Moreover, it causes very slight or no change of shade of the dyed material.

Write today for complete technical information on this useful new fixative.

From Research to Reality

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A SALES DIVISION OF GENERAL ANILINE & FILM CORPORATION

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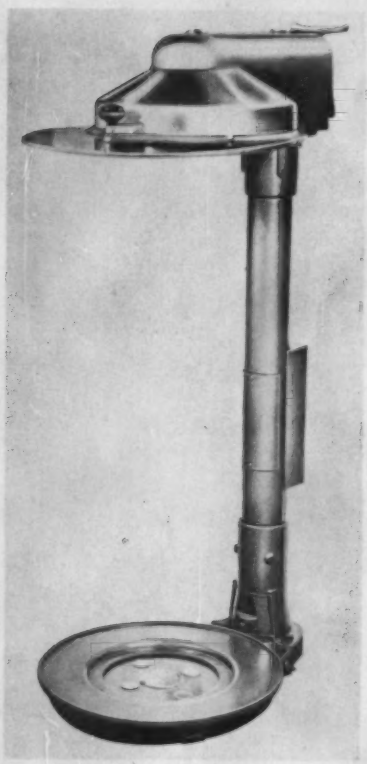
Solidogen LT-13 manufactured by General Aniline and Film Corp. is sold outside the United States under the trademark Fenafix LT.



Card-Coiler Stands

A line of card-coiler stands for 16-, 18-, and 20-in. cans has been introduced by Southern States Equipment Corp., Hampton, Ga. The stands, for can heights of 36 and 42 ins., are easily installed on any cotton card.

Features include ball-bearing construction throughout and roller-chain-table drive. Base and head assemblies are mounted on a strong tubular-steel stand and can be rotated to face in any direction desired.

Circle T-14 on Reader-Service Card

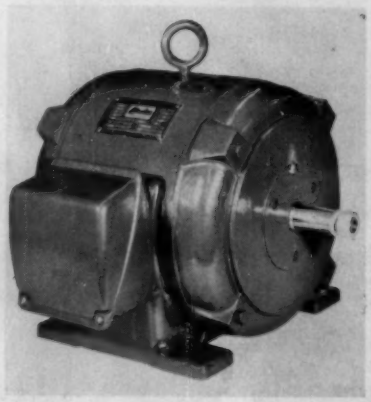
Stiffness Tester

An improved version of the Shirley stiffness tester has been developed by Shirley Developments Ltd., 40 King St. West, Manchester England.

Designed to replace human judgment in gauging the stiffness of textile materials, the instrument measures the length of material required to produce a deflection or droop through a predetermined angle.

To get the bending length of a specimen, it is cut to size by using the graduated scale as a template. Then the specimen and scale are transferred to the platform of the machine with the specimen placed below the scale. The two are moved slowly forward; and when the droop of the specimen coincides with the index lines engraved on the transparent side pieces, the fabric length involved is read off directly from the scale above it.

Circle T-15 on Reader-Service Card



Loom Motor

A totally enclosed, nonventilated, constant-speed, squirrel-cage motor for looms has been announced by Westinghouse Electric Corp., P. O. Box 2025, Buffalo 5, N. Y.

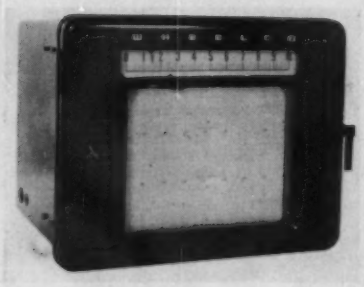
The motors have ample overload capacity to break in new looms and are designed to care for varying torque requirements during the loom picking cycle.

The motors are ¾ to 2 hp., 60 cycle, two or three phase. They are furnished foot-mounted or with a three-point suspension bracket, as required.

Advantages claimed by the manufacturer are:

1. Oversize bearings with locked construction and special-compounded grease assure longer motor life.
2. A dynamically balanced rotor with built-in flywheel produces high inertia to give smoother loom operation.
3. Heavy cast-iron construction increases motor strength and reduces the over-all motor temperature.

Circle T-16 on Reader-Service Card



Circle T-17 on Reader-Service Card

Multipoint Recorder

Its Series 8000 Wheelco electronics multipoint recorder that can be used for the permanent recording of up to 16 points on one chart has been announced by Barber-Colman Co., Rockford, Ill.

The recorder is available in a full selection of standard ranges. It operates on regular 115-v. a.c. current, and a stepdown transformer is available for 230-v. applications.

Accuracy of the recorder is ±¼ of 1% for all scale spans in the pyrometric range.

Rub Apron

A new compound rub apron has been developed by Dayton Rubber Co., Dayton, Ohio. The apron has a permanently rough surface for rubbing thin fibers into yarn.

The rub-apron fabric was developed with an improved compound that will resist any oils applied to the fibers. Equally effective on wet or dry runs, the apron does not slick up or oxidize; and it tracks uniformly over the entire surface. It uses 25% less power than conventional aprons.

Circle T-18 on Reader-Service Card

what have

HYATTS

to do with

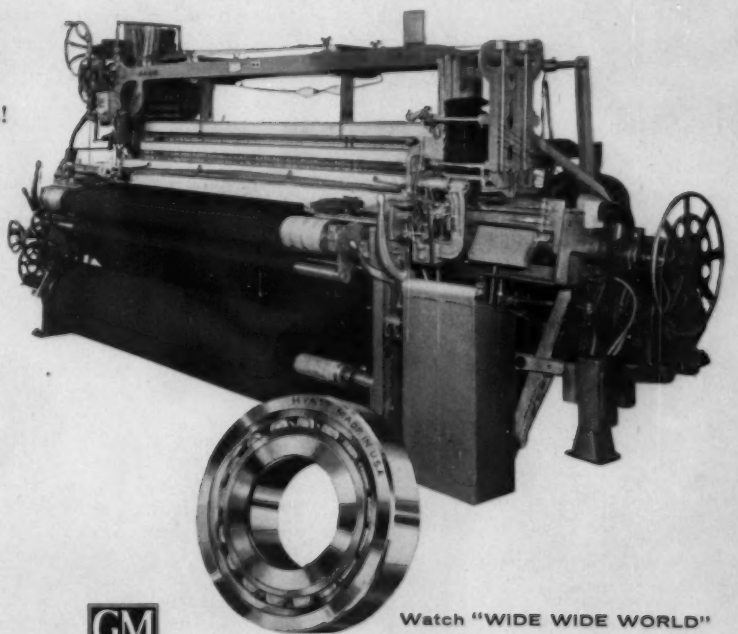
all this?

Fine Fabrics Depend on *Critical Settings!*

The glamorous gown Milady wears so proudly at the Pump Room owes much of its beauty to the fabric from which it's fashioned. And the fabric owes much of its elegance to HYATT Hy-Roll Bearings!

From carding right through to finishing, precision-built HYATTS play a vital part in guarding textile quality. Wherever critical settings are a "must", HYATTS maintain them far more accurately than fast-wearing plain bearings with excessive internal clearance which allow too much play.

Even where fabric perfection is not required, HYATTS are a wise investment. They save up to 40% on power, up to 98% on lubrication, eliminate cloth damage from spattered oil, and sharply reduce maintenance costs. Be sure to specify HYATT Hy-Roll Bearings when you modernize or replace *any* of your equipment. Hyatt Bearings Division of General Motors, Harrison, New Jersey.



Watch "WIDE WIDE WORLD"
Sundays on NBC-TV

GM
GENERAL MOTORS

HYATT HY-ROLL BEARINGS
FOR TEXTILE INDUSTRY

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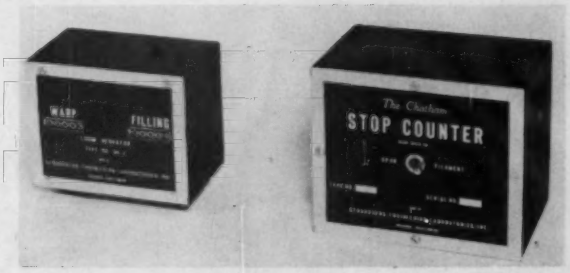


Loom-Stop Counter

A stop counter for recording all warp and filling stops at looms has been developed by Chatham Mfg. Co., Elkin, N. C., and is being manufactured by Strandberg Engineering Laboratories, 416 W. Market St., Greensboro, N. C.

The counter records electrically all warp stops from the electric warp stop motion of the loom. Filling stops are recorded by a Micro switch attached at the shield of the center filling stop motion on Crompton & Knowles W-3 looms.

The counter can be applied to all looms with electric warp stop motions. It records from 6, 12, or 18 v.

The counter also includes a device, shown at the right of the photograph, that prevents registering unless a drop wire is down for as long as 2 secs. This feature is said to be effective on weaves where a few drop wires fall down for one pick or more, as on terry weaves, for example. The counter cannot register again for 10 secs. after a loom is restarted.

Advantages of the counter are:

1. A record of total number of filling stops and warp stops, each recorded separately, is available at the end of each shift for mill standards departments. These data can be run through I.B.M. machines.

2. Loom-stop checks no longer have to be made by people.

3. Weaver jobloads can be made accurately for every style of cloth.

4. In addition to pick rates, weavers can be paid for total loom stops on days when excessive stops are recorded.

Circle T-19 on Reader-Service Card

F.-F. Outerwear Machine

A single-section full-fashioned machine has been developed by Wildman Jacquard Co., Norristown, Pa., to knit outerwear. The machine is being made in 18- and 30-in. wide sections in gauges up to 33.

The machine does not use dividers, and the speeds are up to 65 courses per minute on the 30-in. machine and up to 85 courses per minute on the 18-in. machine.

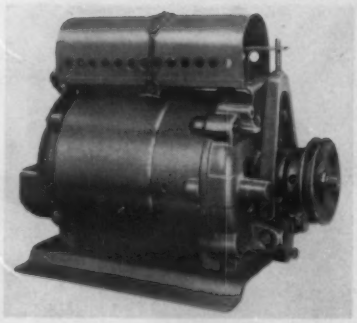
The machine has five carriers, semi-automatic welt turner, V-neck attachment, lace mechanism, and single- or double-needle narrowing bars. Filling-in points are used for widening.

Advantages claimed for the single-section machines are: easy maintenance, more continuous production when one section presses off and when rib transfers are made, and greater flexibility when small lots or samples are knitted.

The machine is not subject to temperature changes and can be put into work almost immediately upon delivery. The machine takes up little space and requires no special flooring.

A battery of five wide and three narrow machines, operated by one girl, can produce 200 doz. sweaters in three 40-hr. shifts.

Circle T-20 on Reader-Service Card



Power Transmitter for Winders

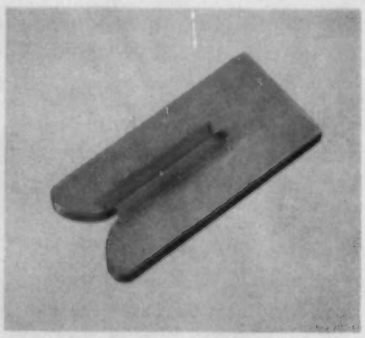
Winders and spoolers can be started and stopped rapidly with an automatic- or remote-control solenoid-operated power transmitter announced by Diehl Mfg. Co., Finderne Plant, Somerville, N. J. Forty or more starts per minute are possible.

The motor uses a constantly running motor-driven flywheel with a short-throw clutch that is actuated by two solenoids arranged in tandem and normally supplied by 115 v., 60 cycles. One solenoid engages the clutch, and the other engages the brake. Control is accomplished by a start-stop push-button station or can be automatic by using limit switches, sensing devices, or timers.

The power transmitter, Type J, is a totally enclosed fan-cooled unit with prelubricated ball bearings. It is available for single-phase, 60-cycle, 115- and 230-v. operation in ¼-, ½-, ¾-, and 1-hp. ratings; and for two- or three-phase 60-cycle 208-, 220-, 440-, and 550-v. operation. Ratings of two- and three-phase models are from ¼ to 2 hp.

The power transmitter is also available without solenoid control in similar ratings. In these models, the motor is controlled by a lever-operated clutch-brake assembly.

Circle T-21 on Reader-Service Card

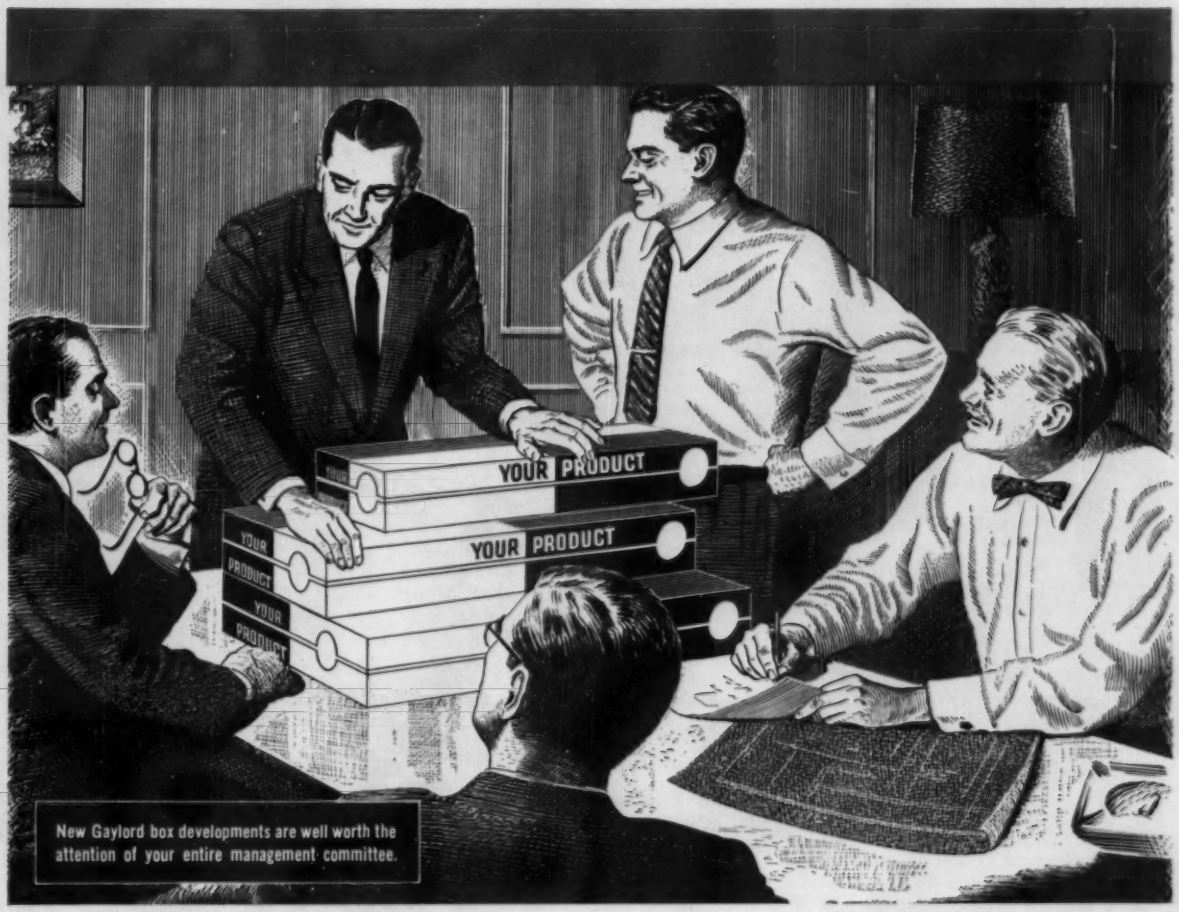


Synthetics-Yarn Cleaner Blade

A long-wearing cleaner blade for synthetics-yarn manufacture has been announced by Linde Air Products Co., Div. of Union Carbide & Carbon Corp., 420 Lexington Ave., New York 17, N. Y. The blade, made of synthetic sapphire, wears much longer than blades made of other materials and has closer tolerances over the length of the gap. Cleaner yarns with more-even diameters are produced.

Circle T-22 on Reader-Service Card

CONTINUED ON PAGE 252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YOUR PRODUCT
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YOUR PRODUCT
New Gaylord box developments are well worth the attention of your entire management committee.

ARE YOUR BOXES 1957 MODELS?

How long since you've reviewed your boxes? Packaging development moves fast. Boxes can become "dated" in just a few years.

Gaylord is constantly developing new protective designs, using new specialized materials, new engineering techniques, new box-making methods, new printing ideas.

Your nearby Gaylord packaging engineer will help you up-date your boxes . . . make them work harder, look handsomer, pay off better for you. Call him now.

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GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

DIVISION OF CROWN ZELLERBACH CORPORATION

For more data, write this page number on Reader-Service card. →

NEW DYES AND CHEMICALS

Surface-Active Agents

Poly-Tergent B-200 . . . Produces water-in-oil emulsions with various animal and vegetable oils. Intended primarily for use in nonaqueous systems, the product is dispersible in water and is an effective wetting-out agent for cotton in the 32 to 75° F. range.

Circle D-1 on Reader-Service Card

Poly-Tergent B-300 . . . possesses outstanding properties as a wetting agent, emulsifier, and dispersant. It is water soluble up to temperatures of 125 to 133° F. and is suggested for wool scouring, desizing, soaping, and carbonizing. The product works well alone or with alkaline builders in any type of scouring process.

Circle D-2 on Reader-Service Card

Poly-Tergent G-200 . . . is intended primarily as an emulsifying agent or as a soap in dry-cleaning solvents in which it dissolves to form clear solutions that will carry small amounts of water.

Circle D-3 on Reader-Service Card

Poly-Tergent G-300 . . . is water and solvent soluble and stable and has good wetting and dispersing qualities over a wide range of pH, temperature conditions, and water hardness. Suggested for desizing, bleaching, and dyeing operations, wool carbonizing, kier boiling, and as a penetrant. Olin Mathieson Chemical Corp., 460 Park Ave., New York 22, N. Y.

Circle D-4 on Reader-Service Card

Softener

Ahcovel X57 . . . is a cationic softener that works effectively on cotton, rayon, acetate, nylon, Orlon, Dacron, Darlan, and other textile fibers. The softener is readily soluble in warm water and is compatible with most resin catalysts. When included with resin formulations, the product does not affect tensile strength and will not contribute to chlorine damage. Arnold, Hoffman & Co., Inc., Providence, R. I.

Circle D-5 on Reader-Service Card

Surface-Active Agent

Sandopan DTC . . . combines the best properties of anionic soaps with the favorable characteristics of nonionic detergents. The product is soluble in warm water and finds application as a wetting-out agent and a detergent in cotton, wool, or rayon processing. The product is not affected by hard water and exhibits increased efficiency when used with alkaline builders in moderate amounts. Sandoz Chemical Works, Inc., 61-63 Van Dam St., New York 13, N. Y.

Circle D-6 on Reader-Service Card

Cationic Dye

Sevron Brilliant Red 3B . . . produces bright, bluish-red shades of good fastness properties. The color works well with other Sevron dyes and is unaffected in shade by dyebath pH variations from 3 to 10. Because it dyes rapidly at the boil, the dye should be used with a retarding agent to avoid unlevel dyeing, particularly of light shades. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Circle D-7 on Reader-Service Card

Softener

Softener 64 . . . is a 100%-active amide softener dispersible in hot water. It becomes cationic if the dispersion is acidified with acetic or formic acids. The product resists high processing and pressing temperatures and will not affect colorfastness. Glyco Products Co., Inc., Empire State Bldg., New York, N. Y.

Circle D-8 on Reader-Service Card

Premetallized Dye

Lanasyn Brown 2RL . . . recommended for superior fastness to light and decatizing, dyes wool or nylon from neutral baths. Good silk-and-wool unions can be had by dyeing with common salt, and the shades are very resistant to fulling. Sandoz Chemical Works, Inc., 61 Van Dam St., New York 13, N. Y.

Circle D-9 on Reader-Service Card

Desizing Agent

Diastafor LCD . . . is described as more concentrated than the previous forms of this material. The new version is easily dilutable in water and requires less storage space per active unit of desizing capacity. Weldrick & Meller, Inc., 630 Fifth Avenue, New York 20, N. Y., for Standard Brands, Inc.

Circle D-10 on Reader-Service Card

Nonionic Detergent

Synthrapol PWS . . . possesses excellent detergent properties when used in scouring cotton or wool. Concentrations of 5 oz. per 100 gals. are recommended as a starting point for scouring baths. The detergent value of the scouring bath can be increased by adding any of the usual builders, but excellent results are obtained in wool scouring without added alkali. Arnold, Hoffman & Co., Inc., Providence, R. I.

Circle D-11 on Reader-Service Card

Vat Yellow

Cibanone Yellow LGR Paste . . . yields golden-yellow shades of good all-around fastness and a particularly good lightfastness of 200 to 240 Fade-Ometer hours. The color can be applied by any of the usual methods and gives level shades that exhaust on tone. Ciba Co., Inc., Box 25, Village Station, New York 14, N. Y.

Circle D-12 on Reader-Service Card

Defoamer

Foamex . . . cuts down foaming of synthetic latices during mixing and handling. As little as 0.5% to 1.0% of the product, based on the dry weight of the total solids, will control foaming. Glyco Products Co., Inc., Empire State Bldg., New York 1, N. Y.

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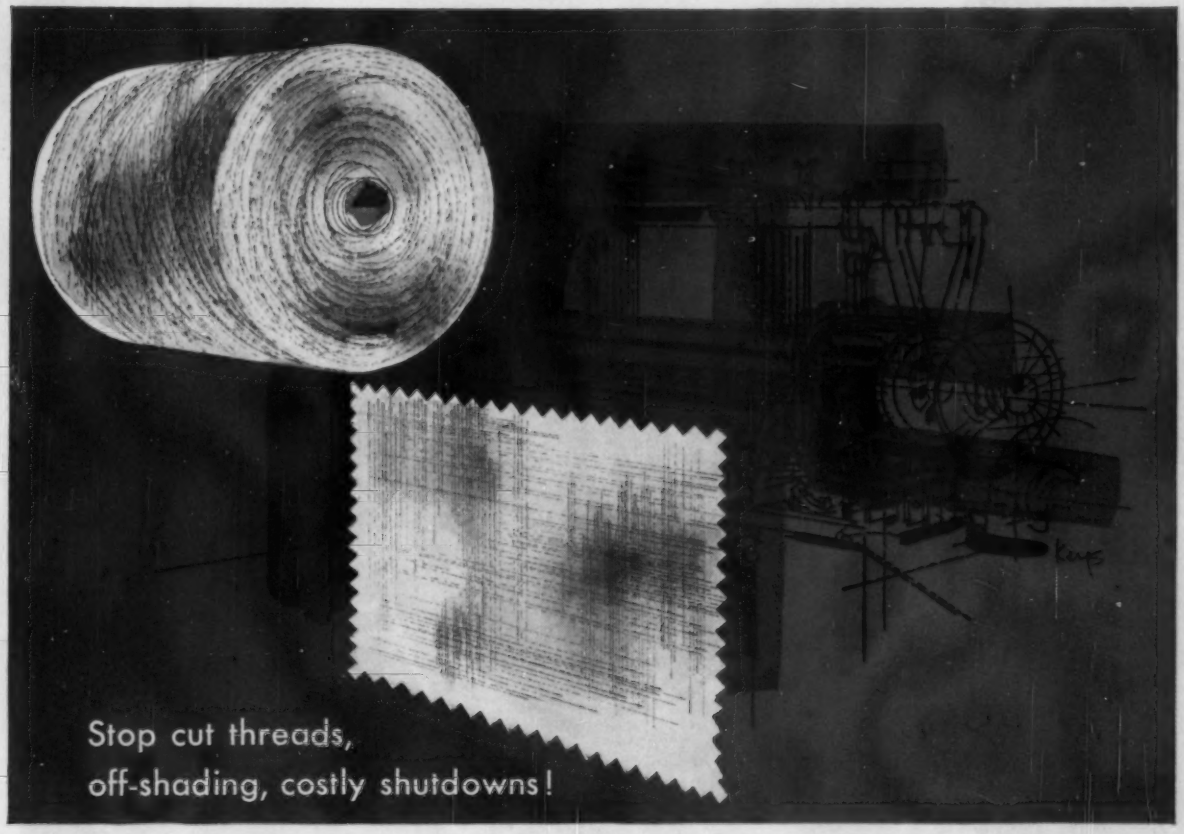

Use MORTON CHEMICAL GRADE '999' Salt

'999' is the all sodium salt (sodium chloride and a trace of sodium sulphate) that prevents dyeing failures caused by salt high in calcium.

Morton Chemical Grade '999' Salt makes it possible for you to get softer finishes, more even shades, greater color intensity. That's because Morton '999' is a low-cost, high purity evaporated salt, free of objectionable calcium and magnesium compounds.

Morton Chemical Grade '999' is more than 99.9% pure sodium chloride, recommended for use whenever commercial calcium-free salt is required.

Available in 100-lb. bags or bulk, '999' is specifically recommended when direct salting is used in dyeing raw-stock, package, beam, beck or jig with either sulphur, direct, or naphthol dyes.

☐ *Please send me more information about Morton Chemical Grade '999' Salt.*

☐ *I would also like to know how much I can reduce calcium and magnesium content by using Morton '999' Salt. Please have a Morton Brine Engineer call on me to explain the benefits of using Chemical Grade '999' Salt.*

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INDUSTRIAL DIVISION
Dept. TW-4, 120 So. LaSalle Street,
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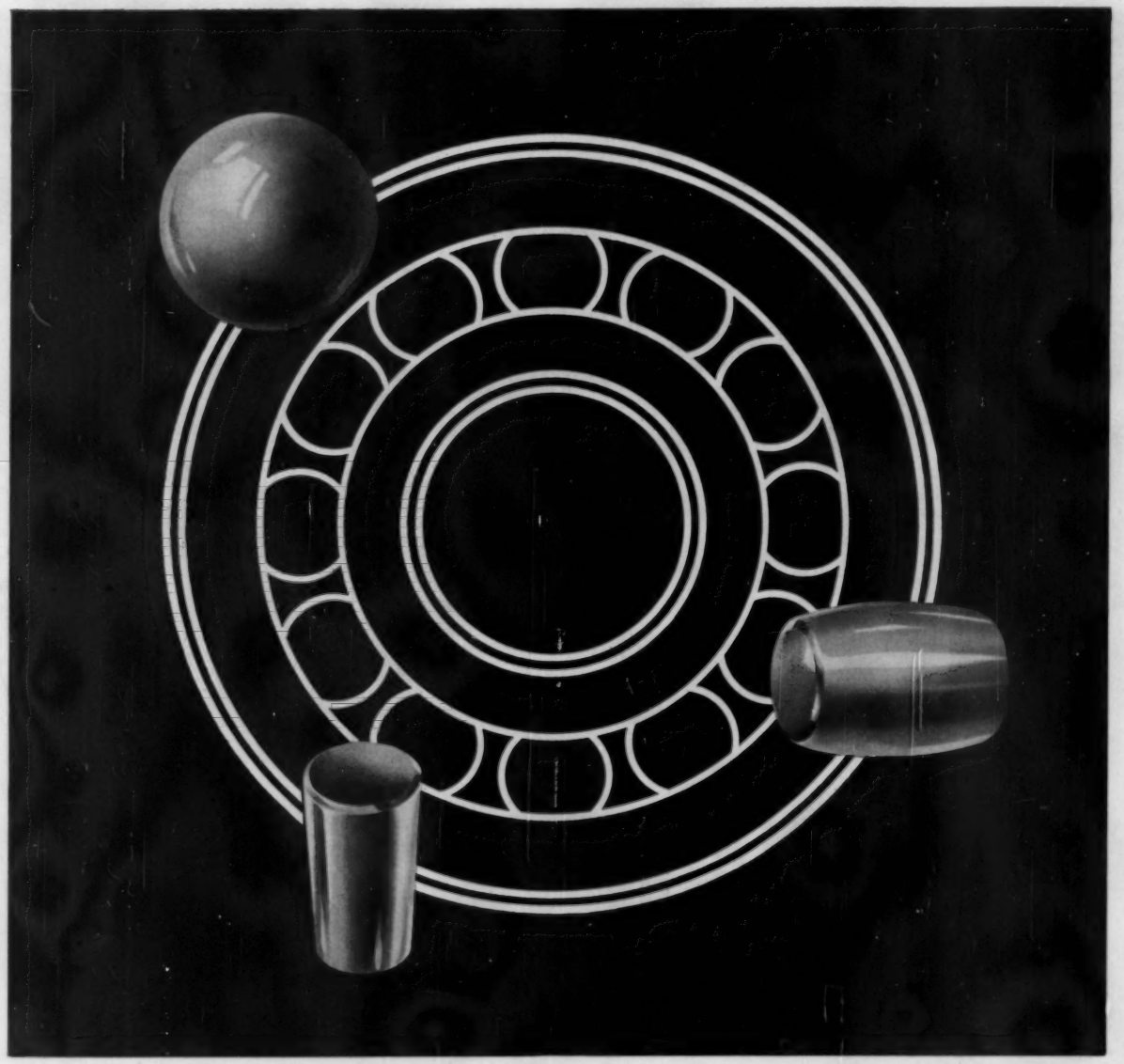

cut bearing maintenance . . . with one lubricant

Nebula EP – another first for Esso Research – is a multi-purpose grease that *out-performs* all other multi-purpose greases. And many specialized greases as well!

Nebula EP works exceptionally well in ball, tapered roller and roller bearings – of *all sizes* from rolling mills to precision instruments.

Nebula EP stands up under extreme heat. It retains its lubricating qualities at high temperatures at which many special heat-resistant greases would have broken down.

And Nebula EP has exceptional water-resistant and rust-preventive properties – an important consideration where water is a factor. What's more, Nebula EP is formulated with a true soap which gives it extra anti-wear and load-carrying characteristics – for an extra margin of protection. High oxidation stability gives Nebula EP longer life in storage and in use.

Nebula EP can be applied by *any* of the conventional methods. Get the whole story about this fine product . . . from your nearest Esso Standard Oil Company Division Office: Boston; Pelham, N. Y.; Elizabeth, N. J.; Bala-Cynwyd, Pa.; Baltimore; Richmond; Charlotte; Columbia, S. C.; Memphis; New Orleans.

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Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultants, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Use Alum on Wool To Reduce Fire Hazards

Technical Editor:

We are running a low-grade wool blended with rayon on the woolen system. How can we reduce fires in our card room? (1258)

Use No. 446X wool oil on your blend. Mix two parts of water to one part of oil, and add 1 lb. of alum to each 50 gals. of emulsion. Alum is a compound that will reduce flammability. It can be purchased in hardware or paint stores.

Other oils can be used, but you will have to experiment with the amount of alum that you will need.

If picked stock is used, put a magnet on the feeder to take out iron trash such as buttons and pins before the stock enters the card.

How To Calculate Reed and Reed Width

Technical Editor:

What is the best rule to calculate the reed width and reed to use for a cloth? (1272)

Reeds may have a variable number of ends per dent. The fewer ends per dent usually is most desirable. Figure the number of dents necessary for a given weave. Two or more ends are usually put in each dent to use reed wires of adequate size and still leave sufficient air space.

Divide the number of warp ends by the cloth width in inches to obtain the ends per inch. Make allowance for cloth contraction, and use the following rule to figure the width of reed:

Subtract one from the sley of the cloth, divide the result by the number of ends per dent, and multiply the result by 0.95.

For example, take a four-harness twill, 40 ins. wide, containing 3,000 ends:

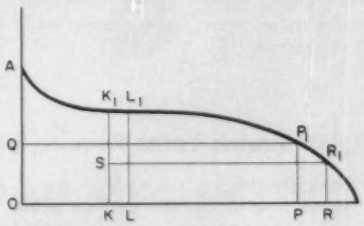
3,000 ÷ 40 = 75 ends per inch
75 − 1 = 74
74 ÷ 4 = 18.5
18.5 × 0.95 = 17.5 dents per inch

When possible, weave a number of yards of cloth and check for sley and width, because variables such as type of weave make precise reed specifications hard to figure beforehand.

Cotton Fiber Graph Can Be Used in Combing

Technical Editor:

Can you explain the effective length in a cotton fiber graph? We understand that LL_1 is the effective length. How can this be used? (1274)



EFFECTIVE FIBER LENGTH is vertical line at LL_1 that can be used to adjust drafting rolls and compare fibers on a comber.

The effective length on fiber arrays was apparently developed in England. The line AO on the longest fiber is halved at Q. A line parallel to the base line cuts the curved portion at P_1. A perpendicular line is then dropped from P_1 to cut the base line at P.

The distance from O to P is measured, and the perpendicular K is drawn at one-quarter the distance from O to P. KK_1 is halved at S, and another line is drawn parallel to the base line to cut the curved portion of the graph at R_1. A perpendicular line is dropped to R.

The distance OR is measured, and at one-quarter the distance the point L is placed. A perpendicular is drawn to L_1. This distance LL_1 is measured and called the effective fiber length. The distance KK_1 is called the first approximation of the effective fiber length.

The effective fiber length could be used in adjusting drafting rolls and to compare (1) fibers fed to a comber, (2) fibers delivered as combed sliver, and (3) fibers rejected as noil.

With correctly adjusted combers, you could expect the effective fiber length of the combed sliver to be longer than the effective fiber length of the stock fed to the machine. You should also expect the effective fiber length of the noil to be much less than the effective fiber length of the stock fed.

Oil or Wax Is Used on High-Bulk Orlon

Technical Editor:

What percentage and what type of lubricant is best for high-bulk Orlon knitting yarns? (1280)

The origin of these yarns is either for staple or tow. The yarn achieves its high-bulk character by a mixture of regular and high-shrink components. The high-shrink type is more static sensitive than the regular type.

Normal staple processing demands an antistatic lubricant to be applied at the picking operation prior to carding. Tow-to-top converting accomplishes the two-component effect by the Turbo stapler or the Pacific converter. Antistatic lubricants are applied at these machines [TEXTILE WORLD, Sept., '56, p. 85] to help subsequent gilling and drafting.

After the yarns have been spun, an additional antistatic lubricant is applied to improve knitting. The type of lubrication at this point can take various forms.

The mill may apply an oil, an oil emulsion, or an emulsifiable or water-soluble wax with an emulsion-roll applicator, or a wax with a wax friction disk. The amount of oil or wax recommended for optimum knitting is 2 to 3% of the weight of the yarn.

Highly refined vegetable and specially fractionated hydrocarbons with antistatic chemicals, emulsifiers, esters, humectants, stabilizers, and blenders are used in varying proportions to achieve the best knitting results.

Tips on Weaving Double Cloths

Technical Editor:

We are experimenting with a double-cloth attachment on a 36-in. Model-E loom. The construction is 64x64 with 24s filling and 22s warp yarn, a 30-dent reed, one end per heddle, and four ends per dent. We are troubled with warp ends breaking at the folding of the double cloth. What can we do? (1279)

Weave double cloth with the open end of the cloth at the battery end of the loom with the folded end opposite the battery. This arrangement relieves yarn strain at filling changes. There is also more slack filling when the shuttle is at the battery end, and the sudden taking up of this slack causes more strain on the warp ends at the selvage.

Set and time the pick to give as easy and smooth motion and shuttle as possible. Be sure the reed and back box plate are squared and aligned. Check the alignment of the lap-end plate and shuttle race. Parallel the pickers with the shuttle spur exactly centering the hole in the picker on the back, but have the picker a fraction of an inch high at the forward end of the sweep. This setting will hold the end of the shuttle down as it enters the shed and prevent breakage of the warp yarn.

Set harnesses with the front harness almost touching the shuttle race with each succeeding harness just a bit higher than the one in front of it. Time the harnesses by having the two front frames level with the reed, about 2 ins. from the fell of the cloth, with the shuttle in the right-hand box.

Keep the shuttle smooth and the spurs true and sharp. Check the shuttle guard and see if it is too low. The warp ends could be bruised between the shuttle and the shuttle guard. Keep the swords and crank arms tight. Set the let-off for even, medium tension. Check the let-back. See that the take-up operates correctly and that the fillet does not let the cloth slip.

If the ends continue to break after everything possible has been done to the loom, check the yarn for breaking strength and twist.

Nylon Stretch Yarns Require 3 to 5% Oil

Technical Editor:

What type of oils are used on nylon stretch yarns, and how much is applied? (1281)

These yarns demand an antistatic oil of the medium coning-oil viscosity range of 60 to 90 secs. Saybolt viscosity at 100° F.

Because of the physical nature of these yarns when they are knitted into fabrics, high temperature and excessive mechanical action cause distortion of the knitted stitch. Knitting oils must therefore be easily scoured out at low temperatures.

The formation of a cone with balanced density plus the ability to deliver from the cone in a uniform manner are as essential to a lubricant's performance as the stitch formation off the needles.

The most successful oils for stretch yarns are those that contain built-in detergents. Soiling that occurs after the lubricant has been applied is much more easily removed. This problem is especially critical in stretch yarns because of the limits put on mechanical action during scouring.

The amount of lubricant is often as significant as the type of lubricant in achieving the greatest benefits. For stretch yarns, amounts of 3 to 5% on the weight of the yarn give top performance ratings.

Humanics — A TW Brief

Delegate Authority

Many supervisors are overworked, nervous wrecks because they insist upon shouldering all the responsibility for the operation of their departments. It's not because they enjoy doing all the work—they just don't want to relinquish any of their authority or they're afraid the work won't be done properly.

The smart supervisor assigns routine detail work to subordinates and with it delegates enough authority to get the job done. He realizes that he is strengthening his own position when he develops able assistants.

Don't Base Overheads On Sales Volume

Technical Editor:

We make children's knitted cotton underwear and outerwear. The percentage of overhead is based on the volume of sales. Are we doing the correct thing rather than basing overheads on direct labor costs? (1273)

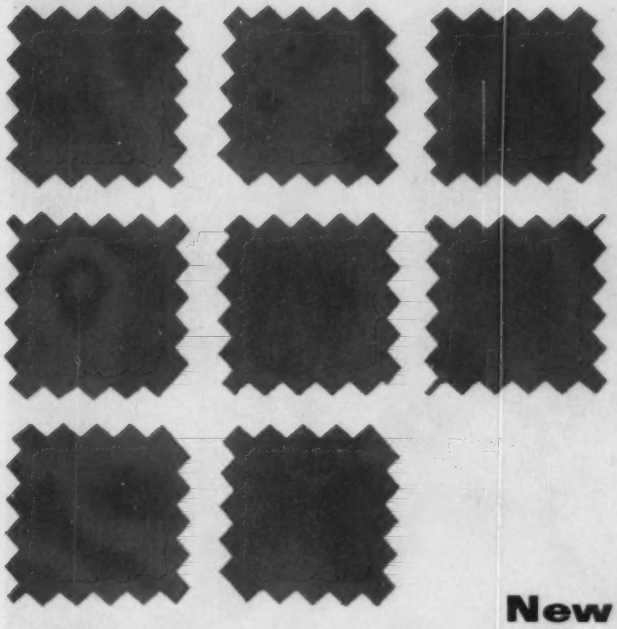
Manufacturing overhead is a function of production and not sales; therefore manufacturing burden could not be applied correctly to the product as a percentage of sales.

Factory burden is usually a function of both activity and time. Direct labor hours will ordinarily produce the best results, because it measures both these factors. Direct labor cost is an expedient method that will provide reasonably satisfactory results in those departments where wage rates are approximately equal. If there is any one cost center with widely differing pay rates for similar work, direct labor cost will not produce satisfactory results.

Direct labor cost is widely used in practice because little or no work beyond payroll preparation is required to obtain the figure. Any other basis usually entails more work.

Selling and administrative expenses or commercial burden is often allocated to the product for pricing purposes on the basis of sales. There are many things wrong with this method, but there are actually few companies who have done much with the refinements of distribution costing.

If all distribution costs were distributed on the basis of sales, conclusions could not be drawn concerning the relative costs and profits of the several commodity lines, territories, and other analytical classes. The ratio of expenses to sales would be the same for all classes.



New Eastman dye series for best over-all fastness on polyester fibers

Specifically developed by Eastman chemists for polyester fibers, this new line of dyes provides the *best over-all fastness* currently available. Eastman's long experience in the manufacture and development of dyes for synthetic textiles has made the new dyes fit the needs of these popular new fibers—and the dyer. Eastman's new series includes nine primary and shading colors, plus black. Four additional colors are in the development stage.

No unusual dyeing procedures are needed in handling these new dyes. The fibers can be dyed in tow, tops, stock or fabric forms. Fabrics of one hundred per cent polyester filament fibers can be conveniently dyed in jigs. Fabrics woven of spun polyester yarns alone, or cotton, viscose or wool blends can be handled in dye-becks. Carriers or dyeing assistants are required, except where high temperature dyeings (250°F.) are used.

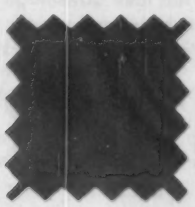
Laboratory and commercial tests show that the new Eastman Polyester Dyes work well with premetalized wool dyes for polyester-wool blends. And virtually all types of viscose dyes are suitable for blends containing viscose or cotton.

Present Eastman Polyester Dyes include the following colors: Polyester Yellow RL, Polyester Yellow W, Polyester Yellow 5R, Polyester Red B, Polyester Red 2G, Polyester Blue GR, Polyester Blue GLF, Polyester Blue 3RL, Polyester Navy G, Polyester Black RB. Color samples are yours for the asking.

Technical assistance on dyeing polyester fibers is available from the Eastman Dye Service Laboratories in Kingsport, Tenn., and Lodi, New Jersey.

Remember—for the best over-all fastness in polyester fibers, use Eastman Polyester Dyes.

Eastman Polyester Dyes



Eastman Polyester Dyes are sold in the United States by EASTMAN CHEMICAL PRODUCTS, INC., a subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee, Lodi, New Jersey, and Greenville, South Carolina. On the West Coast through Wilson Meyer Co.: San Francisco, Los Angeles, Portland, Seattle and Salt Lake City. In Canada through Clough Dyestuff Co., Ltd., 1375 Cote Vertu, St. Laurent, P.Q.

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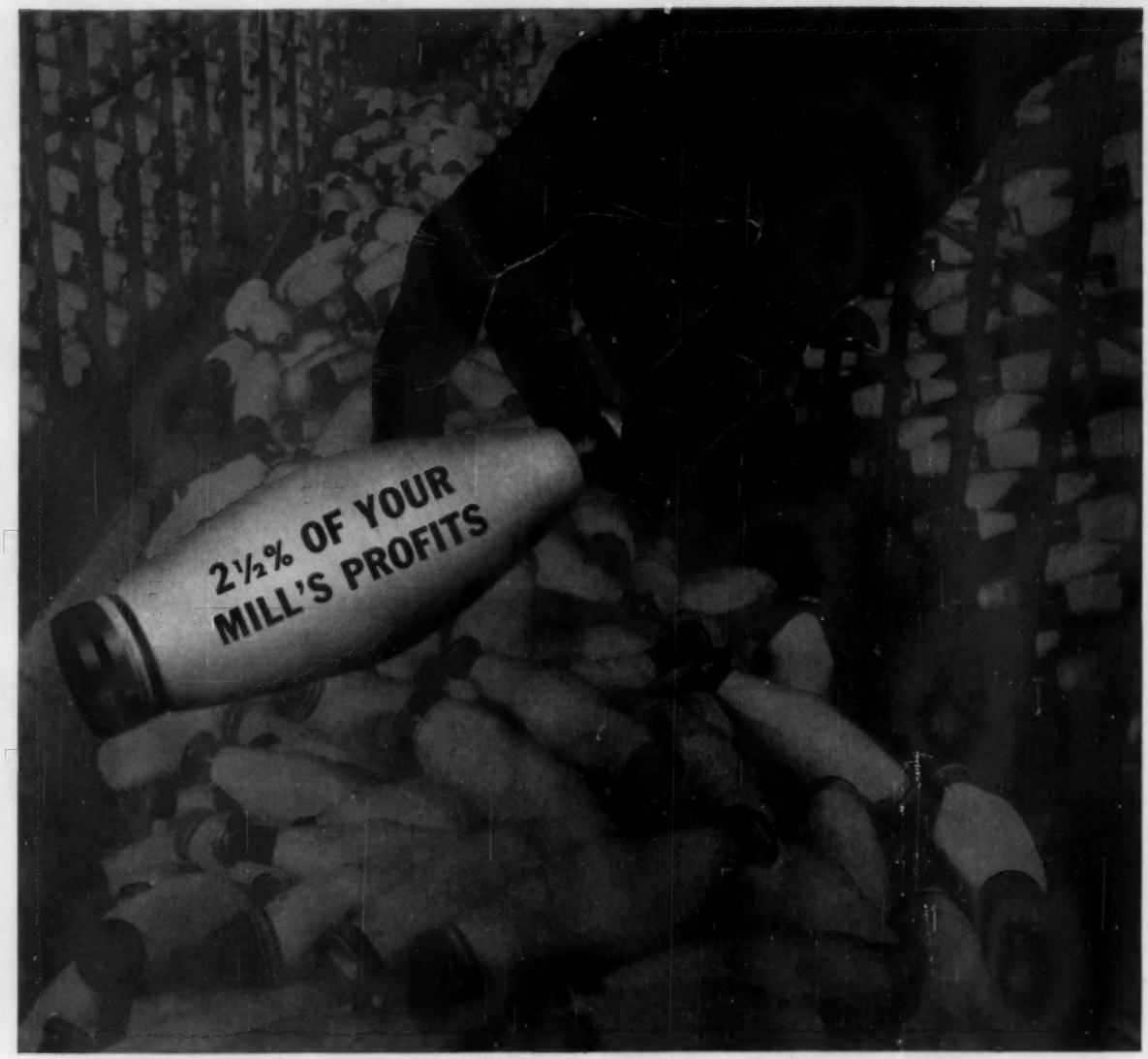

STOP THIEF!

Friction is a silent thief. You can't see it or hear it.

Unless your machinery breaks down, you may never even realize that excessive friction exists.

But you may be puzzled over mounting power costs. For this is one of the tolls that friction takes . . . a toll no one can afford with today's narrow profit margins.

The simple answer to friction—as well as to staining, oxidation, and other problems—is one of the 17 specially made Cities Service Textile Oils.

By minimizing friction and reducing power loads, these remarkable oils can actually add as much as 2½% to your mill's profits!

Why not take advantage of these benefits? Talk with a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

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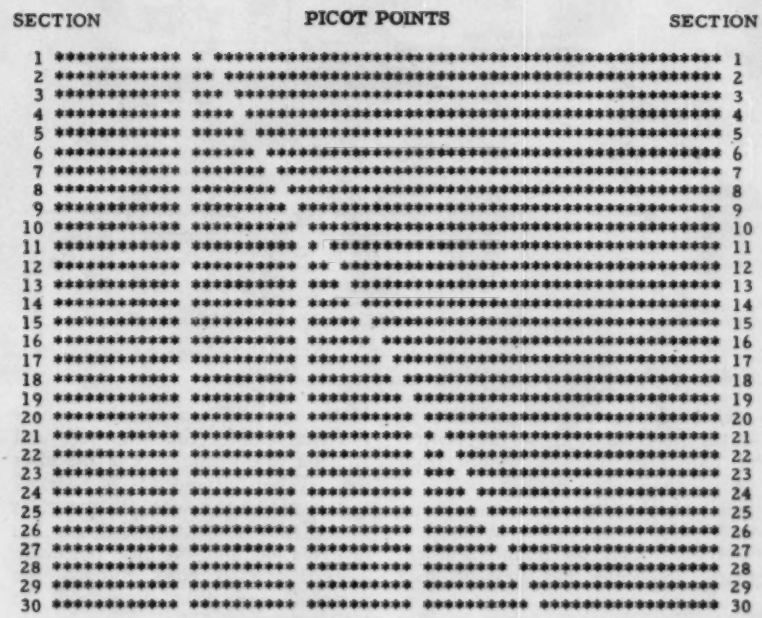


A Better Way To Identify Full-Fashioned Hosiery

Most full-fashioned hosiery mills mark a stocking in the narrowings with the number of the machine it was knitted on. Identification of the section the stocking was knitted on is also useful to keep a check on faulty stockings.

In most mills, the knitter usually marks each stocking with a soap crayon as it is being knitted. This method is fine for following through to the gray-goods department, providing the knitter's numbers are legible and the knitter doesn't forget to number some sets. However, the crayon is rinsed out in finishing, and no section identification is carried from that stage on.

By removing single picot points on the picot bar of Reading machines with center-lace attachment at certain intervals, rapid section identification can be made. The marks are not noticed by the buyer but they are perceptible to a knitter.

To identify stockings from No. 1 section, remove the 13th and 15th picot points from the left side of the picot bar. To identify No. 2 section, remove the 13th and 16th points. Remove the 13th and other single points until No. 11 section is reached.

For No. 11 section, remove the 13th, 24th, and 26th points. For No. 23 section, remove the 13th, 24th, 35th, and 39th points, and so on.

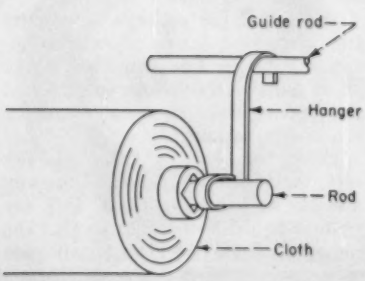
To eliminate drop stitches that would occur if one picot was used, make a double picot. The first picot at the hook-up is made with the center lace button No. 40. The second picot at the hook-up is made with the center lace button No. 38, which moves the picot bar two needles to the left.

Set the center lace chain with No. 40 and No. 38 buttons for the double drop stitch and a No. 40 button for the picot. Set the independent chain with a double narrowing button for drop stitches to correspond with the same buttons on the main chain. Set the single narrowing button and single loose-course button for the picot to correspond with the same buttons on the main chain.

Replace the first double button on the auxiliary chain for the knock-over lever with two single buttons to allow the knock-over rollers to remain on the low cam for the second drop stitch. Replace the single button for the drop-stitch lever with a double button.

Use a double narrowing button on the main chain for two drop stitches at the hook-up. Use a double back-rack button on the same link with the double narrowing button for drop stitches.

Add one chain link on the main chain after the drop stitches. If the machine has a 1948-type back rack, add or subtract enough back-rack buttons to reset the alternators. Add start and stop buttons under the lace control lever for the independent chain. (K-3200) *J. C. Baumgardner, Landrum, S. C.*



Hanger Eliminates Waste at Warp-out

Sometimes it is necessary to doff a roll of cloth when 20 or 30 yds. of warp remain on the beam because the roll becomes too big for the loom. This is especially true of the looms with the low-roll type of take-up.

Two hangers, made of strap iron or discarded warp-stop-motion spacer bars, will permit the extra yardage to be placed on the roll. A hook at one end of the hanger fits over the guide rod, and a long rod passed through the cloth roll fits into a loop at the bottom of the hanger.

The roll of cloth is suspended from the hangers where it will not rub against loom parts. The weaver occasionally rolls the cloth to keep it off the floor. (K-3059) *Sam Magrone Paterson, Berwick, Pa.*

February Prize-Winning Kink

The best Kink published in the February issue of TEXTILE WORLD, according to our reader-judges, was:

"Relieve Drag on Yarn With a Tension Device"

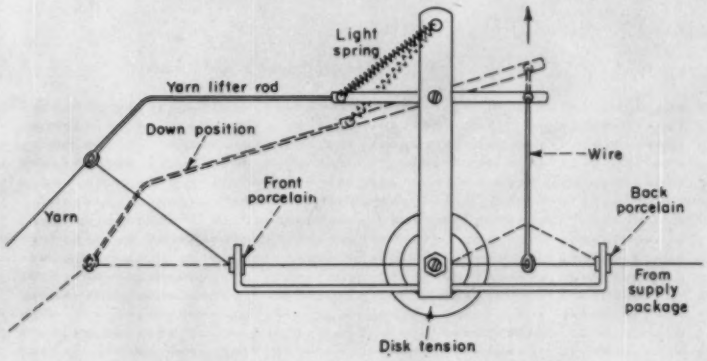
By H. J. Haas, Martinsburg, W. Va.

The winner is being sent a check for $25 with the compliments of TEXTILE WORLD.

The prize-winning Kink is reprinted at the right.

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 300 mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.



Relieve Drag on Yarn With a Tension Device

One of the biggest problems in textile manufacturing is the control of tension as yarn is wound from cones and other supply packages. Different degrees of tension cause unevenness in the cloth. When yarn is poorly wound, the trouble is accentuated and holes and press-offs may result.

Here's an easy-to-make device that relieves the drag on the yarn:

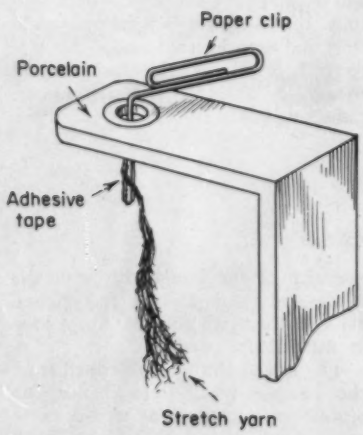
Fasten a disk tension on a bracket between two porcelain eyes. Drill a hole in the tension upright bracket, and attach a yarn lifter rod with a shoulder screw so that it will rock up and down.

Fit a light tension spring from the yarn lifter rod to counteract the pull of the yarn. Fit a porcelain eye at the feed end of the lifter rod, and attach a wire to the back of the lifter rod. When a porcelain is fastened to the end of this wire, the porcelain should be in a direct line between the disk tension and the rear porcelain.

As the yarn flows through the porcelain and disks, there will be little resistance. When a drag occurs, the lifter rod will be pulled down and the wire at the back of the rod will be lifted to pull more yarn off the cone and relieve the drag.

Circular-hosiery knitting machines have tension arms that would require only a little modification to bring this idea into practice. (K-3219)

H. J. Haas, Martinsburg, W. Va.



Simple Way To Thread Stretch or Bulk Yarns

I have seen several suggestions in TEXTILE WORLD on how to thread stretch and bulk yarns through small porcelains in winding and knitting machinery. Here's the simplest method I've seen:

Take an ordinary paper clip, bend one leg of the clip to a right angle, and wrap a small piece of adhesive tape around the bent leg with the sticky side on the outside. Drop the adhesive-taped leg through the porcelain, and touch the end of the stretch yarn to the tape.

The end of yarn can then be easily pulled through the porcelain. The device is not only simple to make, but both hands can be used because the clip will rest on the porcelain. (K-3103)

Use Black Light To Find Oil Spots in Colored Cloth

In weaving yarn-dyed goods, such as wool plaids, it is often hard to see oily yarn and oil spots during inspection. Unless action is taken to remove the spots during finishing, the oil spots may become prominent and downgrade the fabric.

We solved the problem by placing two ultraviolet lamps above the inspecting table. The inspector marks all oil spots on the selvage and informs the weaving foreman so that remedial action can be taken.

Under the black light of ultraviolet rays, most mineral oils shine brightly and can be easily identified. It is important to shade the light so that the radiation from the lamps will not shine directly in the inspector's eyes. (K-3290) *Leon Zeldis, Santiago, Chile*

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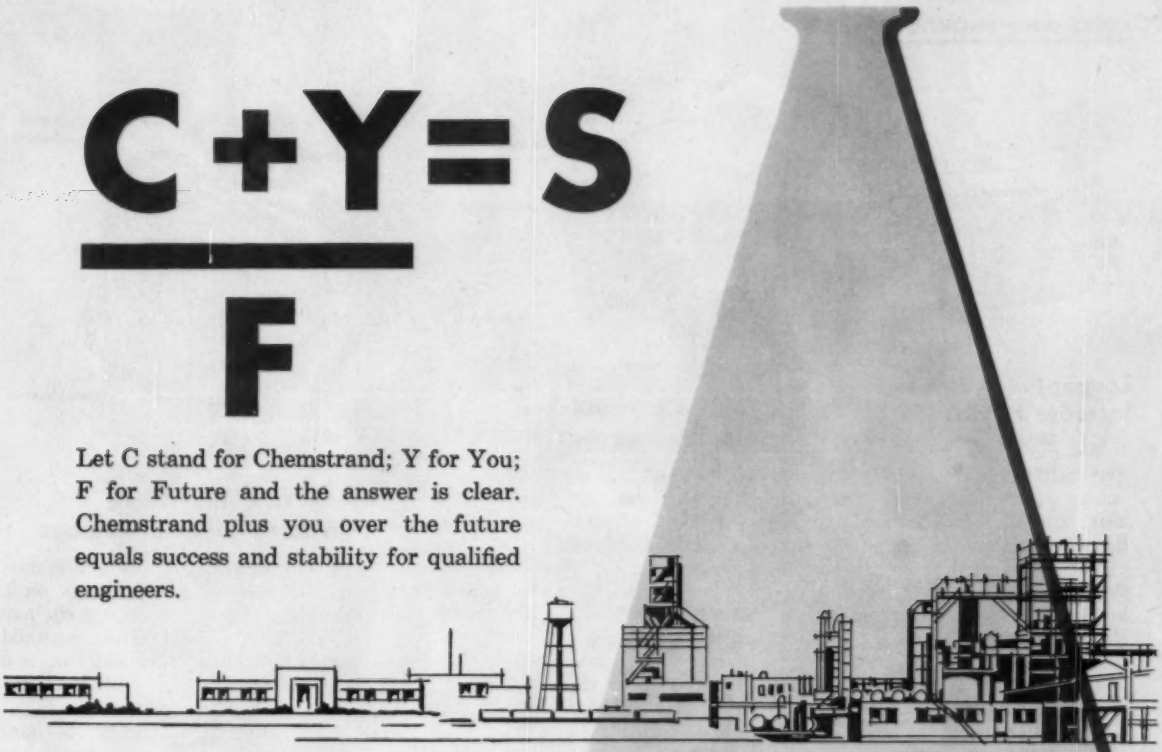
Let C stand for Chemstrand; Y for You; F for Future and the answer is clear. Chemstrand plus you over the future equals success and stability for qualified engineers.



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Gentlemen:
It is my understanding that you need for immediate employment graduate engineers in various fields, particularly chemical, mechanical, industrial, textile and instrument engineering.
I am a graduate _____ engineer.
Please send me information concerning the ground floor opportunities at Chemstrand.

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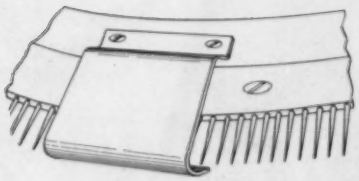


Looper-Point Covers Increase Production

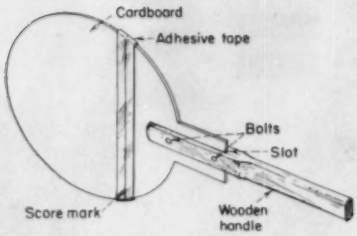
We made covers for looper points that helped our looper operators increase production. The covers are also beneficial to learners because they lessen fatigue of the left hand.

The cover, made from ⅛-in. metal sheet, is about 5x4 ins. in size. Two holes are drilled at one end of the sheet, and the other end is bent to cover the looper points.

Two holes are drilled in the looper dial to match the holes in the cover. The position of these holes is close to the spot where the looper operator normally holds her left hand.

The cover is screwed to the dial, and the operator rests her left hand on the cover while she works. (K-3244)

[Looper hand rests are now made commercially in plastic.—EDITOR]



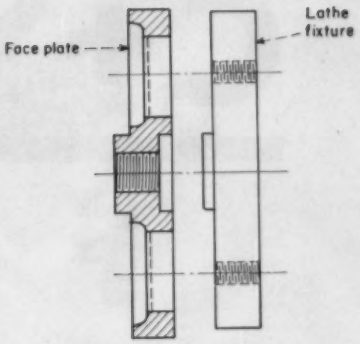
Make a Hand Fan To Remove Lint

Where no compressed air is available and hand fans are used to remove lint from textile machines, a fan with a movable flap helps to do an easier job by relieving tension on the wrist.

Such a fan is easy to make. Saw a slot half-way down the center of a piece of 12x2x1-in. wood. Cut a piece of stiff cardboard to form the shape of your fan, and insert it in the slot. Fix the cardboard to the handle with two small bolts.

To make the fan flap, score a line on either side of the cardboard about ½ in. from the end of the handle. Reinforce this weakened part with adhesive tape to act like a hinge.

Round off the sharp edges on the handle, and you'll have a fan that won't tire the wrist so easily. (K-3294)



How To Center Work On Lathe Without Damage

Conventional clamping fixtures used to hold thin rings or castings on a lathe face plate often damage the material. The lathe-centering method shown here is accurate and fast, and it avoids hand scraping of bores distorted by clamp pressure.

The lathe fixture, made of hard wood or metal, can be centered exactly if the recess in the face plate and the projection on the back of the fixture are a close fit. The use of a standard sizing plug for the recess and a sizing ring for the projection is recommended. (K-3135) *Walter A. Simond, Washington, D. C.*

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Any idea that will

- Cut costs
- Improve quality
- Reduce work
- Increase production
- Make work easier

The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

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1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1957.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 300 will be asked to select preferred Kinks in each issue. Their votes will select the best Kinks, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

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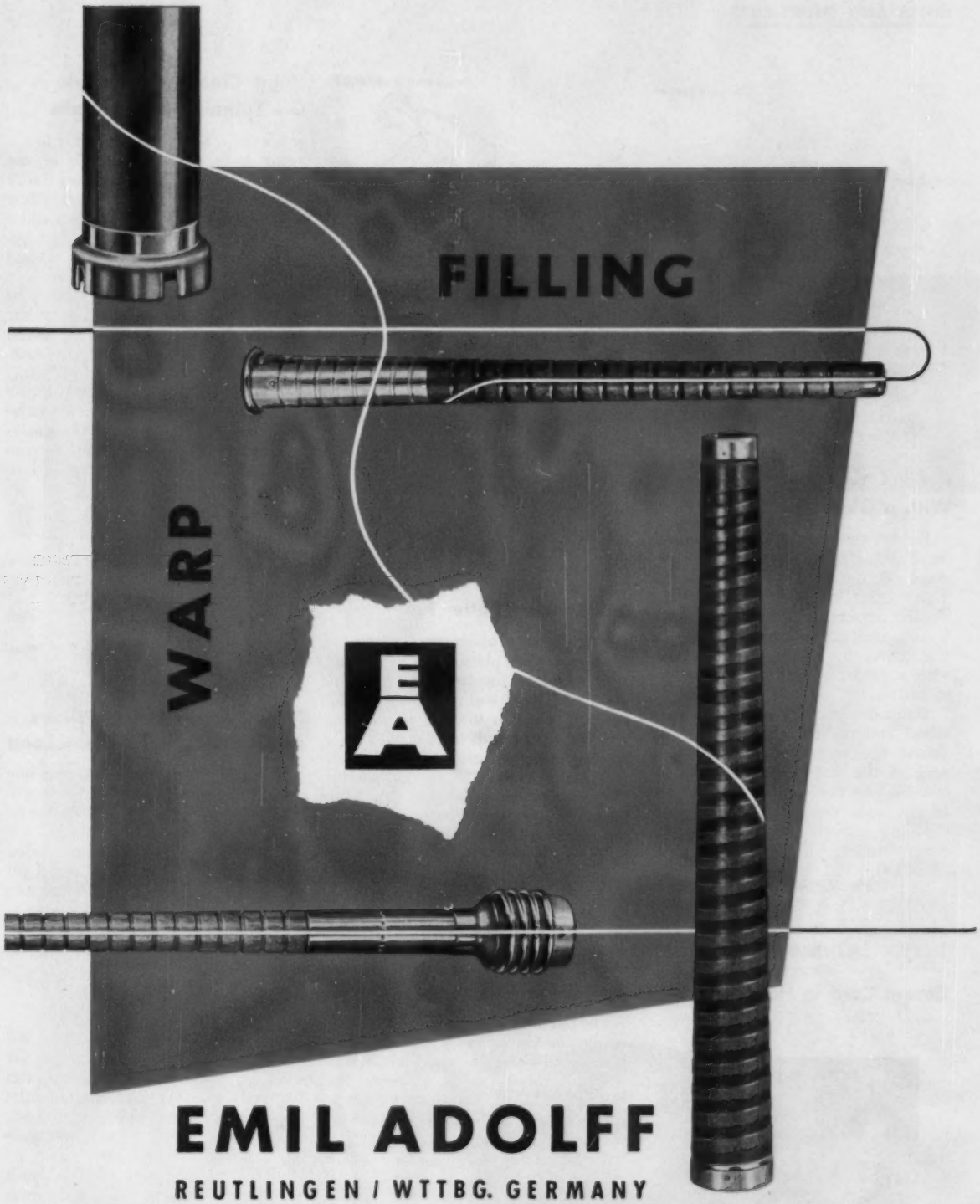

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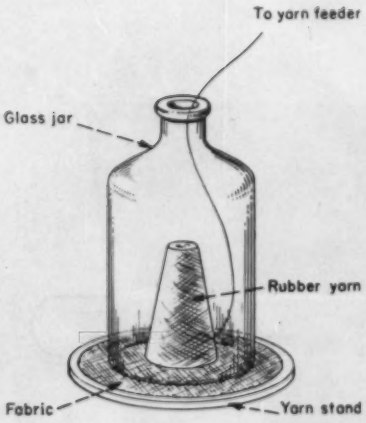
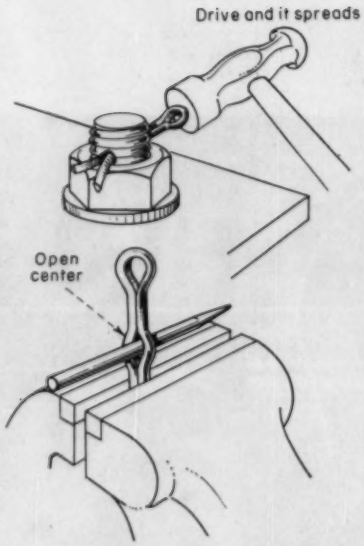


Control Yarn Balloon With a Glass Jar

Rubber yarns are difficult to handle on knitting machines because they wind off the cone in wide sweeps. This action causes trouble at the needles, especially if no feed device is attached. This trouble can be eliminated by curbing the balloon with a glass jar with the bottom removed.

Stand the yarn cone on a piece of fabric laid on the yarn stand, and thread the yarn through the open neck of the jar. Then place the jar over the yarn cone and thread the yarn to the yarn feeder. The yarn will wind off smoothly as it follows the circumference of the jar neck. (K-3213)



Self-locking cotter key

Self-Locking Cotter Pin

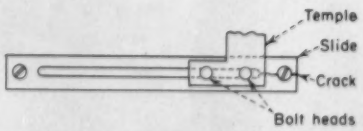
Sometimes a cotter pin has to be used in a close place, and it's impossible to spread the ends into a locked position. If a nail or other round piece of metal is inserted in the pin and the spread ends are closed, a self-locking cotter pin can be produced.

When this pin is driven into a hole, the bulge in the center will close and cause the ends to spread, and the cotter pin will be locked. (K-2938) *Chas. H. Willey, Concord, N. H.*

Paint Cleaning Schedule On Spinning-Room Walls

Spinners and cleaning hands had a habit of getting off schedule in our mill. The excuse was that they didn't have a copy of the cleaning schedule handy or that they had lost their copy and hadn't had time to get another from the overseer or second hand.

We put a stop to these excuses by painting the cleaning schedule on the walls of the spinning room in several strategic places, such as by the washroom door, the elevator, and other entrances or exits. The signs are ceiling high, and the block letters can be read across the room. Our frames stay much cleaner now, and we plan to do the same thing in other departments. (K-3341)

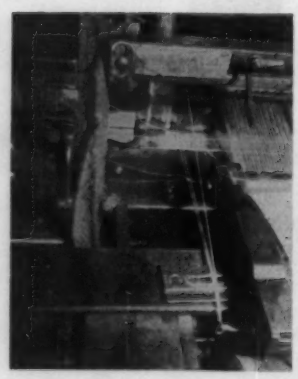


Turn Cracked Temple Slides, And They Last Twice as Long

If loom temple is attached near one end of a temple slide, the strain will eventually crack the slide at the screw hole.

Formerly, we discarded such slides; but now we turn them around and get double life by placing the cracked end away from the temple. (K-3253)

Cotton Cord in Harnesses Stops Jerk-Backs at Looms



On our woolen and worsted fabrics woven on Crompton & Knowles four-box W-3 looms, we often have filling jerk-backs in the fabric. To prevent the jerk-backs, we have installed check cords to separate the filling in the four shuttle boxes.

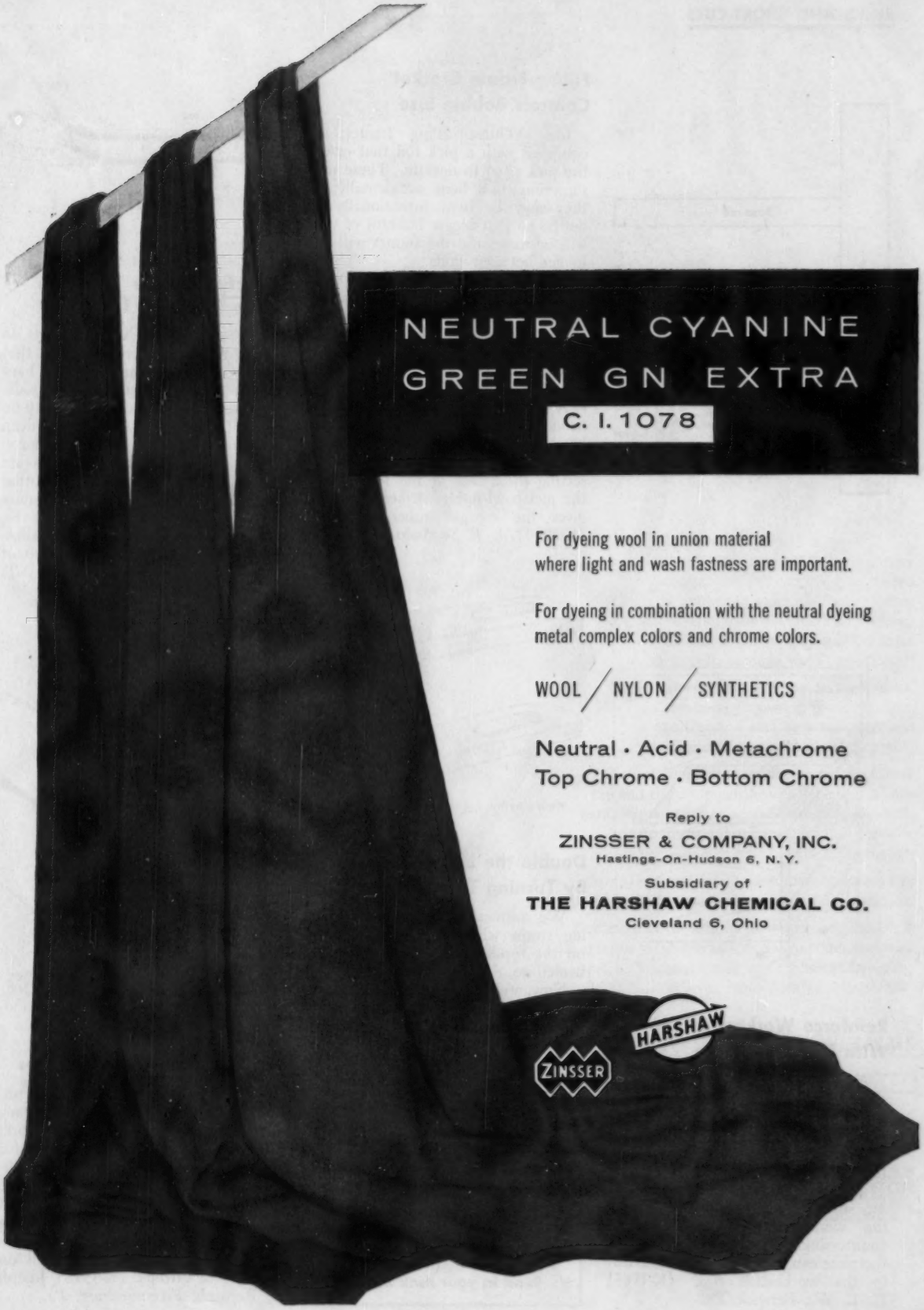
Three bobbins of heavy cotton twine are hung from the back loom arch by old shuttle bobbin grips. The grips are fastened to steel rings from broken bobbins; the rings are inserted in holes bored in the loom arch at the head end of the loom.

The twine from the bobbins is threaded through the contact bars of the electric warp stop motion. Then they're given a turn under the whiproll and are run over the whiproll at the edge of the warp.

Extra heddles are put on the harnesses at the drive-end edge of the loom. Sometimes complete extra harnesses to hold the extra heddles are needed. The twine from each bobbin is threaded through a heddle on a different harness.

The harness pattern chain is built so that the twines raise and lower with the shuttle boxes to keep each strand of filling separate. In this way, the filling cannot roll together and be jerked into the cloth.

When a strand of twine wears, more yarn is easily pulled off the bobbin. Now jerk-backs are all but eliminated. (K-3317) *Chatham Mfg. Co., Elkin, N. C.*



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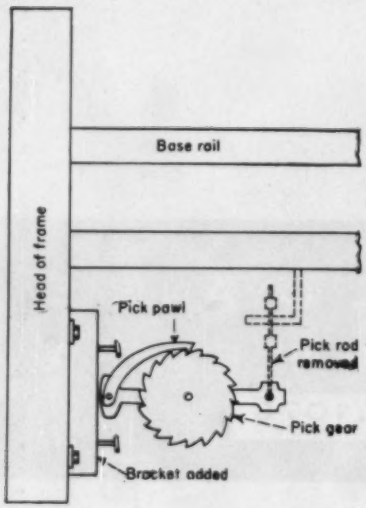
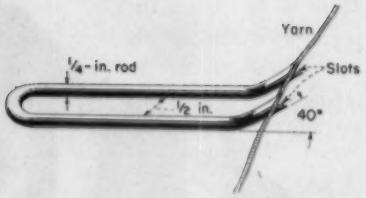


Filling-Frame Bracket Controls Bobbin Size

Our Whitin filling frames are equipped with a pick rod that causes the pick pawl to operate. These rods sometimes are bent accidentally; or they may be bent intentionally by doffers so that bigger bobbins of yarn will be made and the frames will run longer between doffs.

The oversize bobbin will not fit in the loom batteries and shuttles. Much of the yarn must be rewound or put into waste. We hit upon an idea that makes it impossible for anyone to change the picks without the use of a wrench.

A bracket was built to fit on the inside head of the frame. Into this bracket we inserted two $\frac{7}{8}$-in. rods with a crosspiece on the ends. By setting these rods at the right place, the pick-pawl holder strikes them and gives the right number of picks. (K-2994) *L. P. Scarboro, Trion, Ga.*

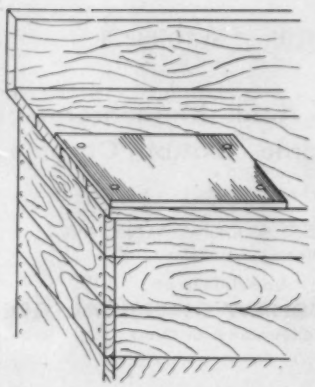


Hosiery-Machine Threader Saves Knitters' Time

You can make a simple gadget to thread Banner hosiery machines that have become unthreaded or have broken threads under the yarn guide.

Make the threader from a 10-in. piece of welding rod. Cut a $\frac{1}{8}$-in.-deep slot across each end, and bend the rod in the middle so that the ends are about $\frac{1}{2}$ in. apart. Bend the two slotted ends to a 40° angle about $\frac{1}{2}$ in. away from the tips.

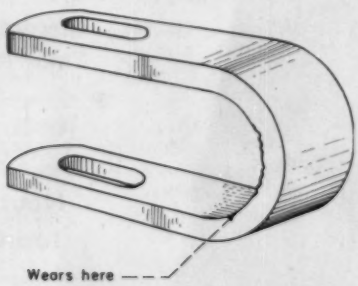
Place the yarn in the slots, as illustrated, and you will find the job of threading much easier. (K-3407) *T. Gasper, Martinsburg, W. Va.*



Reinforce Workbench Top With Flat Steel Plate

A sheet of flat $\frac{1}{8}$-in. steel of suitable width and length makes an ideal working surface for soldering, brazing, and light hammer work. If welding is done, a sheet of asbestos should be placed beneath the steel.

The steel plate makes a rigid working surface and protects the top of the workbench. By drilling and countersinking a hole in each corner, the plate can be attached permanently to the workbench top. (K-3163) *H. E. W., Berwick, Pa.*



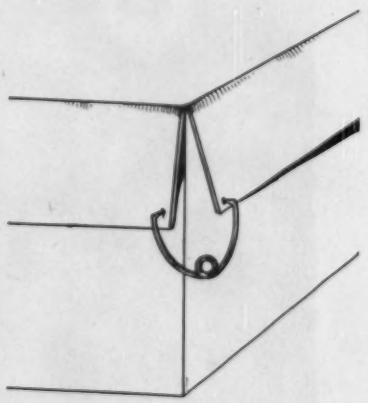
Double the Life of Lugs By Turning Them Over

We formerly replaced our short lug straps when they became worn on the top side where they are connected to the pick-shaft arm.

Now, we've found that the service life of the lugs can be doubled by turning them over. There is no extra expense involved since we overhaul our looms about three times a year and the lugs are turned at the time. (K-3206)

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

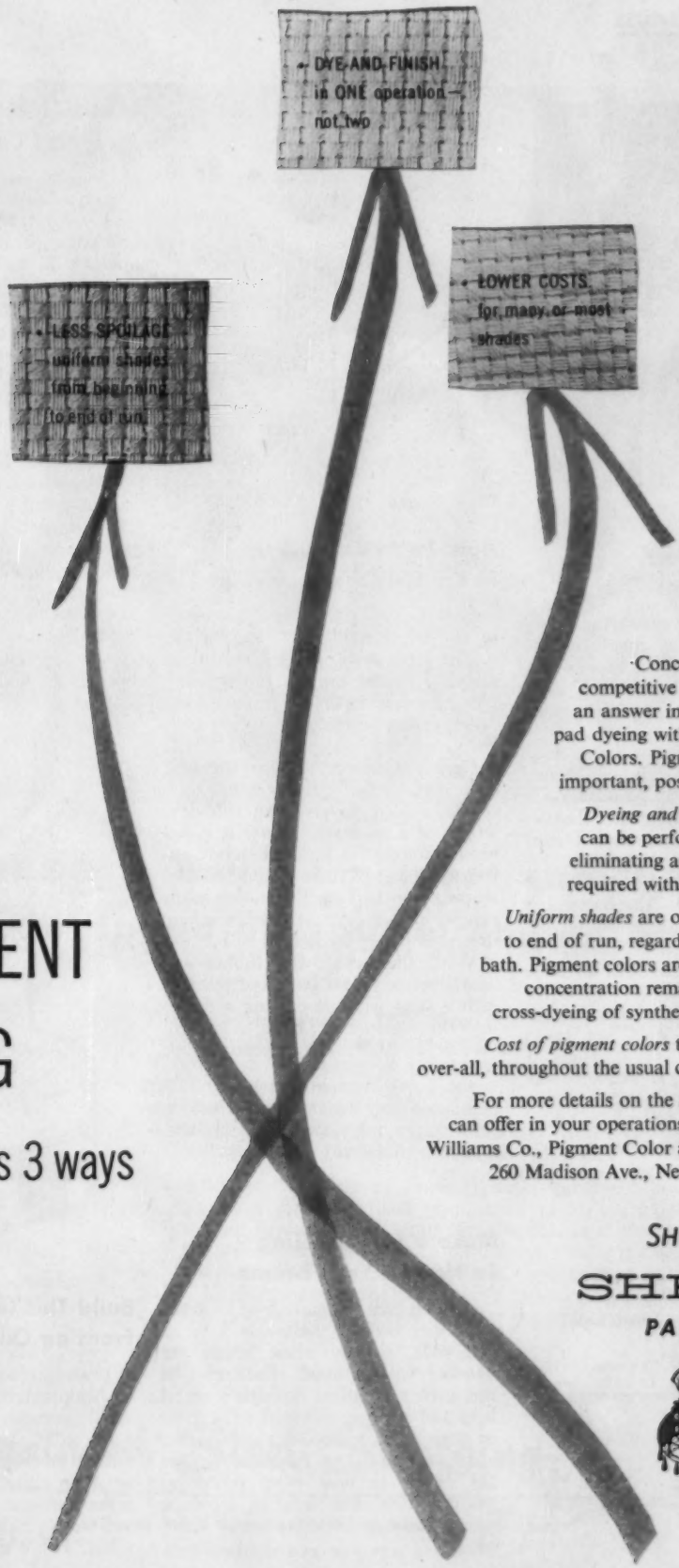
Send in your Kink now.



Springs Holds Carton Flaps

When a cardboard carton is unloaded, the cover flaps have a tendency to close and interfere with the work. I have designed a spring holder for these flaps that does a good job without injury to the carton.

The flaps are folded down and held in place by the springs, two springs being used on each carton. These spring holders work equally well on all sizes of cartons. (K-3318) *Joseph S. Repasch, Freemansburg, Pa.*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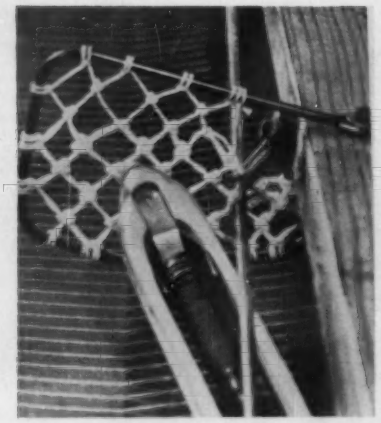


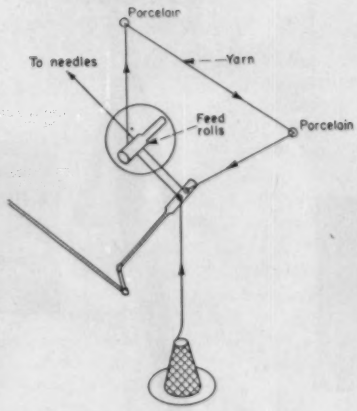
Extra Shuttle Guard Prevents Accidents

One of our weavers was seriously injured when a flying shuttle in our weave room hit him in the spine about two years ago. To avoid future accidents, we added an extra shuttle guard to all our looms.

The guard is made of heavy cord and is knotted so that it will absorb the shock of a shuttle blow without breaking or ricocheting the shuttle. The cord is knotted around a steel wire bent as shown in the picture.

The wire is mounted in the center of the loom handrail. The bottom of the wire is fastened under the regular shuttle guard; the top is fastened to the top of the handrail with an extra lag screw.

The new guard does not damage the shuttle, and it does not cause warp break-outs when it stops a shuttle. It is not in a weaver's way because a warp end can be drawn in easily on each side of it. (K-3203) *J. Lee Roberge, Centredale, R. I.*



How To Avoid Puckers In Knitted Girdles

Puckers in knitted girdles, caused by the lay-in rubber catching on the rubber cone, are responsible for many seconds. These puckers can be completely eliminated by passing the lay-in rubber through the feed rolls twice.

Feed the rubber through the feed rolls, and thread it through two porcelains spaced to give the rubber a length of 2 to 3 yds. before it is fed back through the feed rolls and into the needles. Set the guides on the shaping arm to keep the rubber yarns parallel and as close as possible where they pass through the feed rolls.

With this setup, the rubber can be deliberately held back and released with a snap without causing a defect in the garment being knitted. (K-3293) *Robt. E. Bitgood, Hope Valley, R. I.*

Modified Bobbin Holder Preserves Cops and Yarn

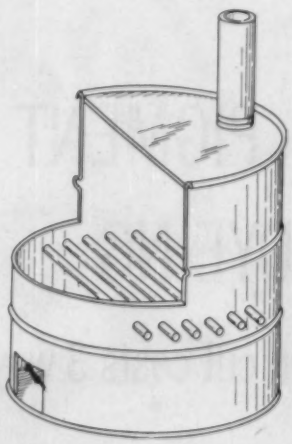
Fine metallic grit used to discolor our rayon and nylon as it was wound on our Whitin-Schweiter winders. The grit would get on the operators' hands and rub off on the yarn, especially on light shades.

This grit was caused by the constant friction between the metal cop holder and the metal cop itself. The bearings did not seem to help.

Paper cops or wooden quills could not be used because the high tension caused them to collapse too easily. Also, bobbin butts would get rough and cause broken picks during weaving.

I modified a bobbin-end holder by inserting a small fibre plug in it, and the wear on the metal surfaces was eliminated immediately. The fibre, obtainable in sticks at small cost, can be cut and inserted easily and quickly.

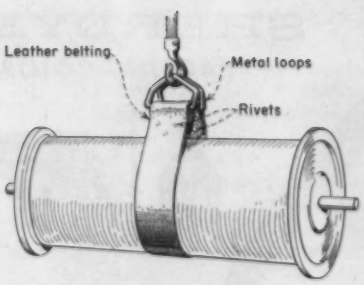
Replacement of metal cops was almost entirely eliminated, and the operators' hands no longer dirty the yarn. (K-3366) *Joseph Hagl, Philadelphia, Pa.*



Build This Incinerator From an Oil Drum

If an outdoor incinerator is needed to heat materials or to burn rubbish safely, one can be quickly made from a discarded steel drum.

Cut to shape with a cutting torch or sharp chisel as shown. Then drill holes and insert iron rods for a grill, and weld a pipe to the top. (K-3129) *Chas. H. Willey, Penacook, N. H.*



Make a Leather Sling To Handle Yarn Beams

A sling can be made from a piece of leather belting, preferably 8 to 12 ins. wide, to use when beams are handled with a hoist. Each end of the leather is pulled through a metal loop and securely fastened with rivets or sewn on a shoemaker's machine.

In use, the sling is passed around the beam, as near exact center as possible, and the hoisting hook is passed through both the metal loops. (K-2997)

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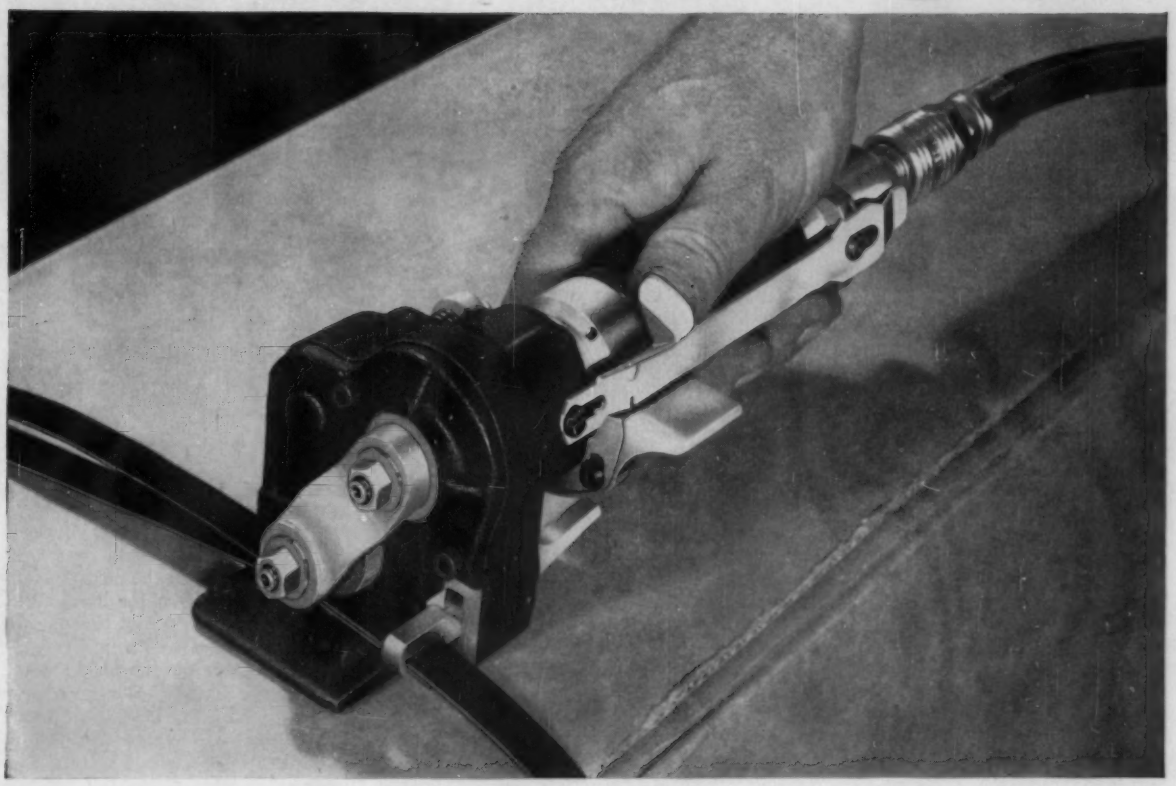

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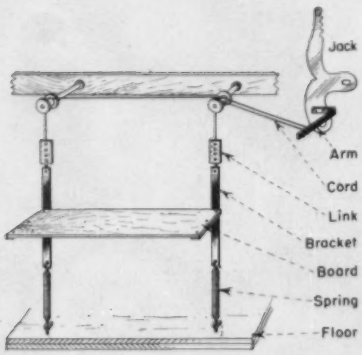


Hold Slack Warp Ends With Board Under Drop Wires

On some weaves, the design of the fabric will be such that some ends are slacker than others. If the slack is not taken up, the drop wires will finally fall low enough to cause the loom to stop.

We have had some success with the arrangement shown in the sketch. This attachment was used on an XD loom but is adaptable to other looms equipped with a dobby.

An arm is attached to the back jack and extended to a point over the stop motion. Two cords attached to the arm pass over spools on rods that are fastened to the arch connection.

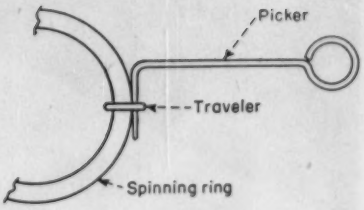
Leather links with holes for vertical adjustment are hooked to the cords. Fastened to the links are two flat iron brackets that support a wooden board the same width as the stop motion.

The bottom of the bracket is attached to bottom girts of the loom or to screw eyes in the floor.

The bracket is positioned just in front of the stop motion so that the board is directly beneath the drop wires. The dobby pattern chain is pegged so that the jack operates every three picks.

As the jack moves, it raises the board under the drop wires and lifts them to top position. The weaving action takes the slack from the warp ends while the drop wires are held up.

The jack then moves to forward position and holds for three picks. This action lets the drop wires hang suspended from the warp ends. Any broken ends will then cause the loom to be stopped in the usual manner. (K-3234) *Walter B. Elliott, Emporia, Va.*

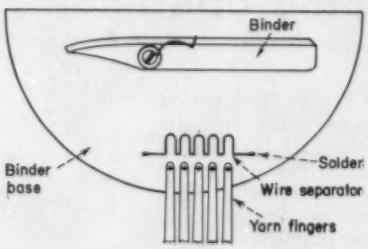


Simple Tool Removes Travelers Rapidly

To remove travelers from spinning rings, we made a tool from mild steel as illustrated.

Called a "picker," the tool is slipped beneath the traveler and given a slight twist. The traveler slides easily onto the point of the picker and can be dropped directly onto a container.

The operators wear the pickers hanging from their waists for handy use. A woman using this tool can clear a complete side in 2 to 3 mins. without dropping a single traveler on the floor. I believe the method is simpler and faster than the use of filed-down pliers. (K-3337) *L. V. Reynolds, Lancashire, England.*



How To Keep Hosiery Yarns From Twisting

Seconds or waste are caused if two yarns run in one finger at the binder of a circular-hosiery machine. Needles are sometimes broken, and smashes can occur because the needles knit two yarns.

A separator wire will prevent much of this damage. Bend a wire to the shape shown in the sketch, with depressions to separate each yarn. Solder the wire to the binder base on a line with the yarn-guide fingers to keep the ends from twisting before they reach the binder. (K-3322)

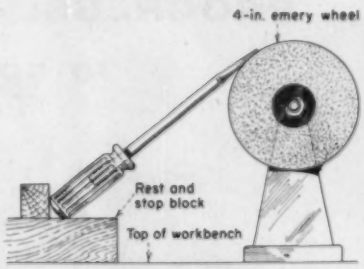
Stop Strip-Outs With an Electric Eye

The gray room and singeing departments in our mill are separated by a partition; and because of this partition and the distances involved, it is difficult to warn the singer operator of a loose end in time for him to shut down before the machine strips out.

We solved the problem by mounting an electric eye on the pot eye that guides the fabric through the gray room. The light beam directed at the electric eye is broken as long as cloth is passing through the pot eye; but a loose end actuates the electric eye and the singer is automatically stopped. (K-3397)

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

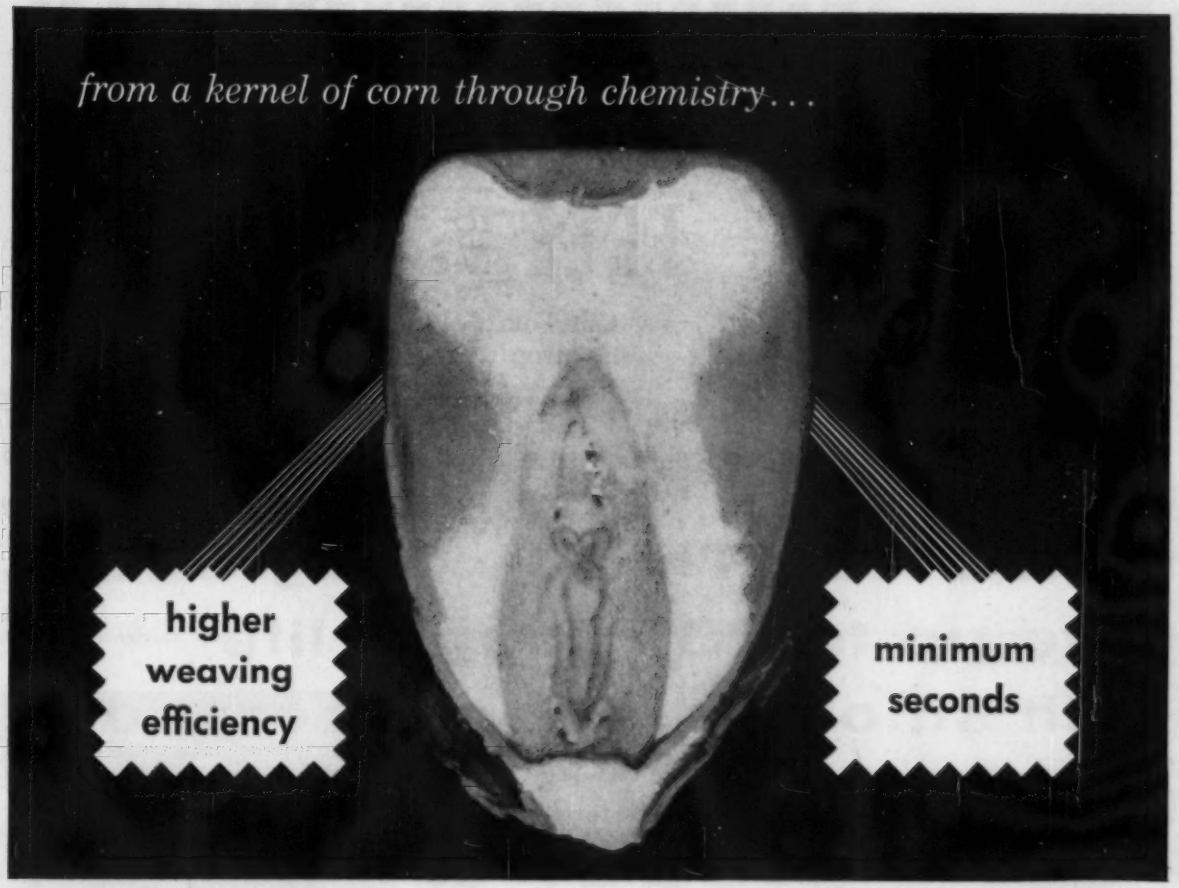
Send in your Kink now.



Hollow-Ground Screwdriver Holds Screws Better

The conventional wedge-shaped points of screwdrivers require much pressure to keep them seated in the screw slots. The point sometimes damages the screw heads, which makes them hard to tighten or remove.

By using a rest and stop block on the workbench, as illustrated, a screwdriver blade can be hollow-ground on a small emery wheel. A hollow-ground blade has surfaces that enter the screw slot almost parallel and hold the screw better with less pressure. (K-3343) *Walter A. Simond, Washington, D. C.*



NALEX®: a warp size for spun rayon and worsted yarns

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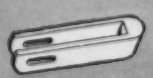

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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y. April, 1957

Outstanding NEW LITERATURE
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NO REPEATS . . . Listed here for April are current bulletins reviewed by the editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY & AUXILIARY EQUIPMENT

Fiber blender—For cotton, wool, or synthetics. Weighs fibers to produce accurate blends at up to 500 lbs. per hr. per unit. W. D. Dodenhoff Co., Inc. (F-1)

Twisters—Four-deck model, carries 400 spindles running at 14,000 rpm. 1-lb. packages in cheeses or bobbins. Ernest Scragg & Sons Ltd. Sunderland St. Works. (F-2)

High-speed knitting machine—Produces up to 1,000 courses per min. at 168-in. width, up to 26 yds. per hr. F.N.F. Machinery Mfg. Co. Ltd. (F-3)

Top-roll saddle guide—Requires no cap bars, works on Roth, Duo-Roth, and Casablancas spinning frames. Dixon Corp. (F-4)

Sewing machines—Particularly for fabricating knitted fabrics into garments. Bulletin 254 from Union Special Machine Co. (F-5)

Circular knitting machines—For under- and outerwear. Many models for plain or patterned effects. Scott & Williams, Inc. (F-6)

Antifriction bearings—For picker calender stacks on Saco-Lowell or Kitson pickers. B&B Industries, Inc. (F-7)

Card drive—Package-type unit that includes motor, necessary gearing, and controls for individual drive of each card. Bulletin 225. Precision Gear & Machine Co. (F-8)

Counters—For every textile and many other applications. Catalog and special bulletins available from Durant Mfg. Co. (F-9)

Electronic testing machine—For research and production-control requirements. Handles from 2-gram to 200-lb. loads through electronic load-weighing system. Instron Engineering Corp. (F-10)

Loom mounts—Vinyl composition in special design to provide machine mounts that require no bolts or adhesives. Clark, Cutler, McDermott Co. (F-11)

Pneumatic sliver-lap control—For combers; produces even laps at predetermined weights up to 38 lbs. each. Livingston & Haven, Inc. (F-12)

Floor sweeper—For Gwaltney frames; mounts underneath, moves from end to end, blowing lint to alley. Bahnson Co. (F-13)

Yarn meter—Measures yarn delivery to knitting machines, helps uniformity, determines fabric yield. Scott & Williams, Inc. (F-14)

SUPPLIES & CHEMICALS

Quaternary ammonium salts—Many uses of several types of these chemi-

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cals described in Arquad Bulletin from Armour & Co., Chemical Div. (F-15)

Synthetic-latex polymers—Papers presented at technical seminars cover many aspects of latex production and utilization. Reprints available from Goodyear Tire & Rubber Co., Inc. (F-16)

Alkalis & chemicals—Booklet covers complete list of alkalis and chemicals made by Solvay Process Div., Allied Chemical & Dye Corp., Dept. PB. (F-17)

Textile chemicals—Resins, reducing agents, surfactants listed in booklet T25C. Rohm & Haas Co. (F-18)

Organic chemicals—Acids, alkalis, plasticizers, solvents, special products listed in bulletin from Celanese Corp., Chemical Div. (F-19)

Rust preventives—Many types of corrosion-resistant coatings, primers, and sealers listed in Cat. 256. Rust-Oleum Corp. (F-20)

Emulsifiable polyethylene—Brochure lists many formulations of emulsifiable polyethylene, some suggested textile uses. Semet-Solvay Petrochemical Div., Allied Chemical & Dye Corp. (F-21)

Textile chemicals—Latices, surfactants, accelerators, compounding materials, and allied chemicals listed in booklet from Alco Oil & Chemical Corp. (F-22)

MAINTENANCE & ENGINEERING

Tool-steel catalog—Special steels for fashioning tools are described; tables and data cover makeup and uses. Burke Steel Co., Inc. (F-23)

Air compressors — Small air-cooled units for general use inside and outside. Bulletin AC-15 available from Gardner-Denver Co. (F-24)

Hot-water heaters—Instantaneous type, operating on injector principle. Capacities to 300 gals. per min. Pick Mfg. Co. (F-25)

Pushbutton switches—Oil-tight control units available in key-operated, selector-switch, flush-button, mushroom-head, or knob-operated models. Pub. EL- 178. Cutler-Hammer, Inc. (F-26)

Speed indicators—Electrically operated, direct-plate mountings or offset drive. Dials to read as required. Reliance Electric & Engineering Co. (F-27)

Machine knives—Circular and straight

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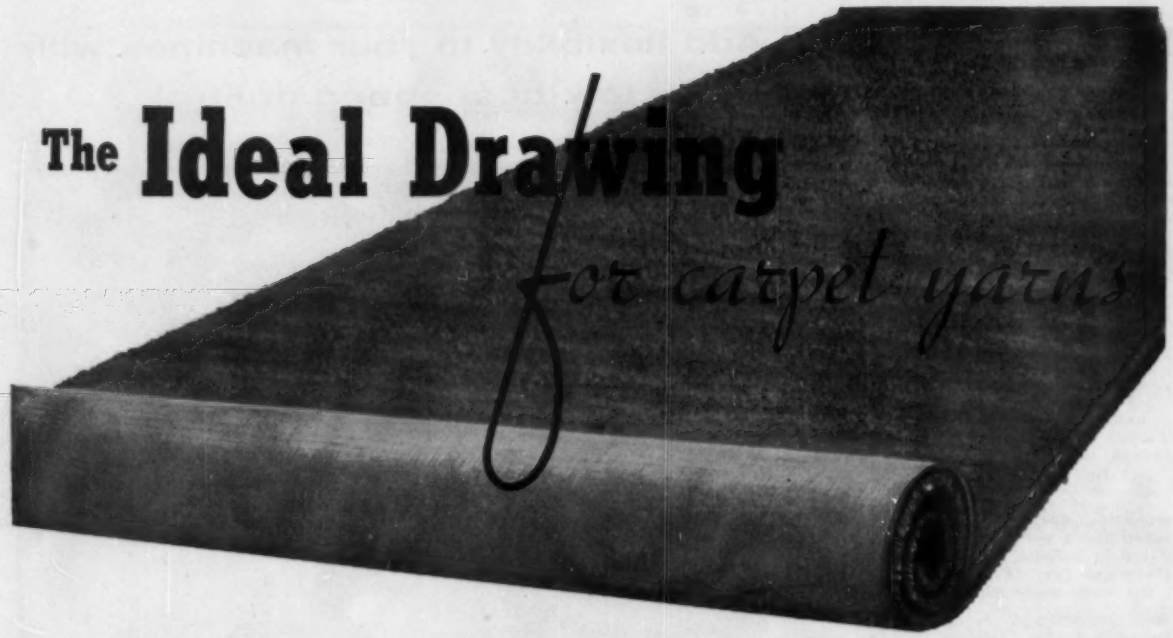
The Ideal Drawing for carpet yarns



IDEAL High Speed Ball Bearing Drawing Rolls* are today producing perfect carpet yarn sliver from 3" staple 15 denier Nylon and other synthetics combined with each other or with cotton or wool fibres. They do this at their usual high speeds without any evidence of shearing or "cockling". Ideal's exclusive construction also eliminates practically all of the static troubles usually encountered when synthetic fibres are run.

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Ideal Drawing can be furnished on complete new Ideal Frames or as replacements on any make drawing frame.

*Patent Nos. 2,610,363; 2,490,544; 2,412,357. Other patents pending

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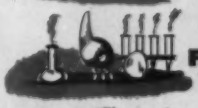

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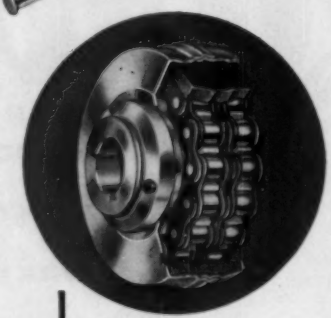

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NEW LITERATURE Continued

blade, for slitting, pinking, many textile purposes. Catalog with engineering data from Alcon Production Tool Co. (F-28)

Valve guide—General catalog of valves of most types and sizes in common use. Circular 555, Lunkenheimer Co. (F-29)

Constant-speed motors — Synchronous induction motors up to 40 hp. in various cycles and speeds to meet individual specifications. Bulletin 51B8440A. Allis-Chalmers Mfg. Co. (F-30)

V-belt drives—Engineering manual available that provides information on selection and design of V-belt drives. Much additional engineering data. Maurey Mfg. Co. (F-31)

Annunciator systems — For industrial use. Signaling systems that indicate off-normal conditions of operation. Cat. 100-B. Panalarm Div. of Panellit, Inc. (F-32)

Glass heat exchangers—Modular shell-and-tube units of Pyrex glass described in Bulletin PE-33. Corning Glass Works. (F-33)

Variable-speed drive—For 1/40- to ¾-hp. motors. Several types and applications described in folder from Revco, Inc. (F-34)

Electric heating units—Enclosed- and open-element heating devices for many purposes described in Cat. 27-620. Westinghouse Electric Corp. (F-35)

Glass-lined tanks—For manufacture and storage of all corrosive chemicals except hydrofluoric acid. Bulletin 936. Pfaudler Co. (F-36)

Aluminum forms—Plate, sheet, tube, pipe, rods, and bars listed and described in 16-page bulletin from Joseph T. Ryerson & Son, Inc. (F-37)

Machinery mounts—Require no bolts, absorb noise and vibration, retain machine alignment. The Felters Co. (F-38)

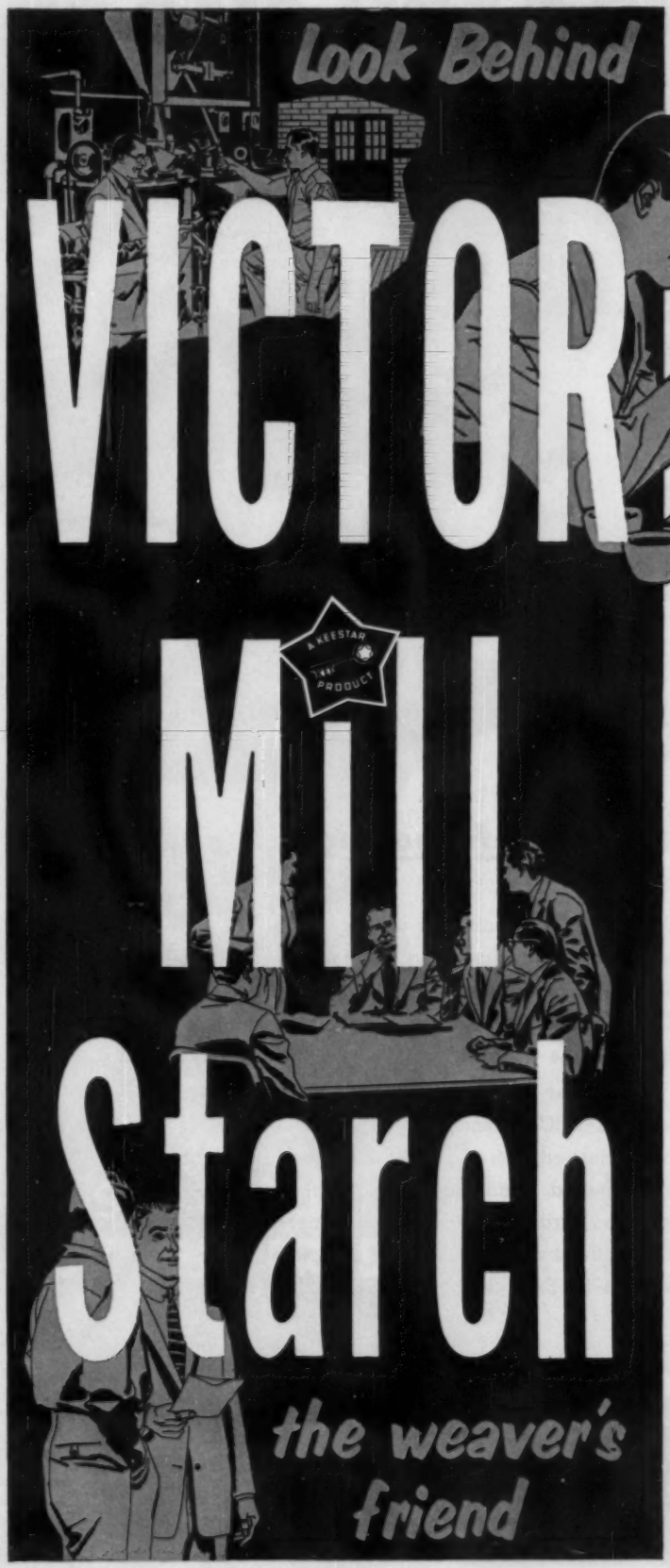
Air-conditioning cabinets — Complete units that will heat or cool 875 to 22,000 cu. ft. of air per min. Refrigerating equipment not included. Bulletin AC-120. Buffalo Forge Co. (F-39)

Spinning-frame drive—Variable-speed drive gives infinitely variable speeds 500 to 1,450 rpm. at 7½ to 15 hp. Reeves Pulley Co. (F-40)

GENERAL

Platform trucks—Electrically powered trucks for moving goods on pallets. Capacity 4,000 lbs. Mercury Mfg. Co. (F-41)

Monorail equipment—Tracks, cranes,



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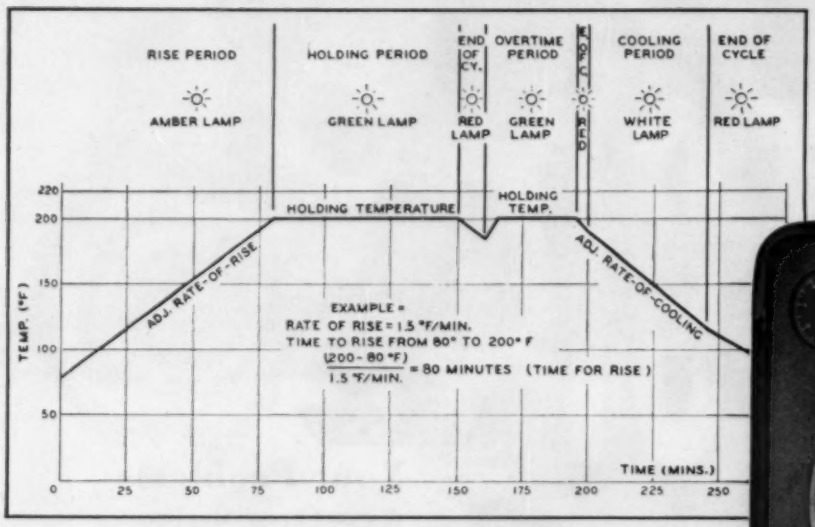

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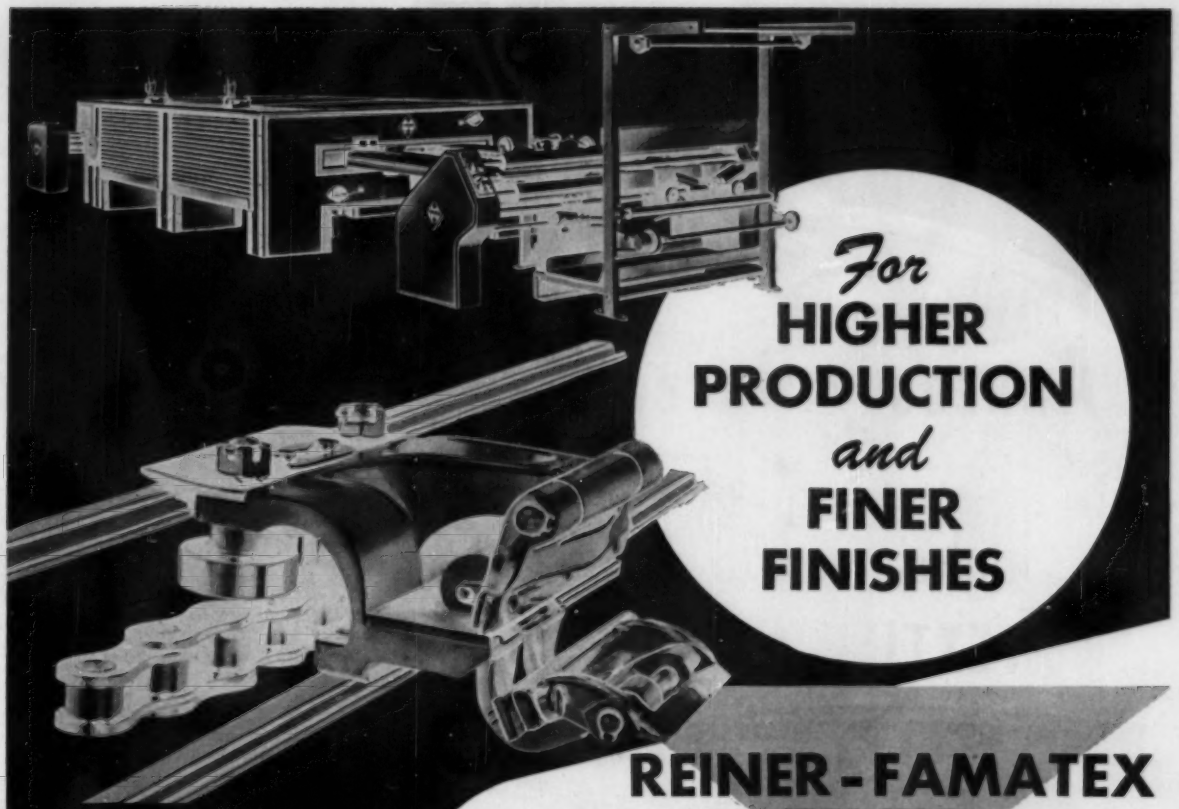

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NEW LITERATURE . Continued

manual- and power-operated trolleys and tractors listed in Form SC-1. American MonoRail Co. (F-42)

Structural equipment — Angle iron punched and slotted to aid in building racks, table frames, similar structures. Acme Steel Co. (F-43)

Materials-handling units — Pallets, skids, boxes, wheeled trucks, designed for modern materials-handling methods. Bulletin 800. Powell Pressed Steel Co. (F-44)

Truck ramp—Automatic self-leveling ramp actuated by truck as it approaches loading dock. Bulletin 256. Loomis Machine Co. (F-45)

Facsimile labels—For addressing shipments, product identification. Form F-113. Weber Addressing Machine Co., Inc. (F-46)

Materials-handling equipment—Hand trucks, casters, drum racks, dollies, other auxiliaries. Form R-63. Bond Foundry & Machine Co. (F-47)

Electric hoist—Push-button controlled hoist for stationary or track mountings, 250- to 2,000-lb. capacities. Bulletin H-39. Harnischfeger Corp. (F-48)

Weighing machines—Equipment designed for accurate product weighing at various points of textile manufacture. Exact Weight Scale Co. (F-49)

Palletless handling—Equipment that loads, moves, unloads materials without need of pallets. Yale & Towne Mfg. Co. (F-50)

Textile World

BOOK REVIEWS

TECHNICAL MANUAL AND YEAR BOOK, American Association of Textile Chemists and Colorists, 1956 Edition; Howes Publishing Co., 44 E. 33rd St., New York, N. Y.; 626 pages, $6.

The only complete list of American dyestuffs and a listing of all textile-processing chemicals are reasons enough to make this manual a valuable addition to any textile mill's library.

In addition, standard and tentative test methods of AATCC cover most phases of fabric-testing procedure;

YOUR OLD HOSIERY DYEING MACHINES HAVE

TRADE-IN Value!

Replace them with *MODERN* SMITH-DRUM Rotaries

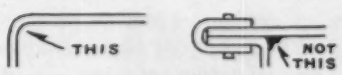
Abolish High Maintenance Costs . . . Improve Quality of Work

Every dyeing machine has a normal life-span of efficient operation. Beyond that point, maintenance costs and work stoppages make continued operation progressively more costly! In spite of this fact, there are many old machines still in use that have far out-lived their efficiency.

By taking advantage of the trade-in value of your old Monel hosiery dyeing machines on modern SMITH-DRUM Stainless Steel Rotaries you will eliminate high maintenance costs . . . effect many operating economies . . . improve quality of work. We will be glad to inspect your present equipment and give you an accurate appraisal of its trade-in value.

CHECK THESE FEATURES AGAINST YOUR OLD MACHINES

- **STAINLESS STEEL CONSTRUCTION**
  . . . no corrosion . . . no contamination
- **ROLLED CORNERS**
  . . . replace riveted and soldered construction.
  . . . permit easier and complete rinsing.



- **NEW NON-METALLIC BEARINGS**
  . . . replace bronze bearings.
  . . . longer life . . . non-corrosive.
- **MODERN DYEHOUSE-INSULATED MOTORS**
  . . . long trouble-free life.

SMITH, DRUM & COMPANY

432 W. Allegheny Ave., Philadelphia 33, Pa.

Southern Sales Representatives: **PARROTT AND BALLENTINE** • 518 South Carolina National Bank Bldg., Greenville, South Carolina

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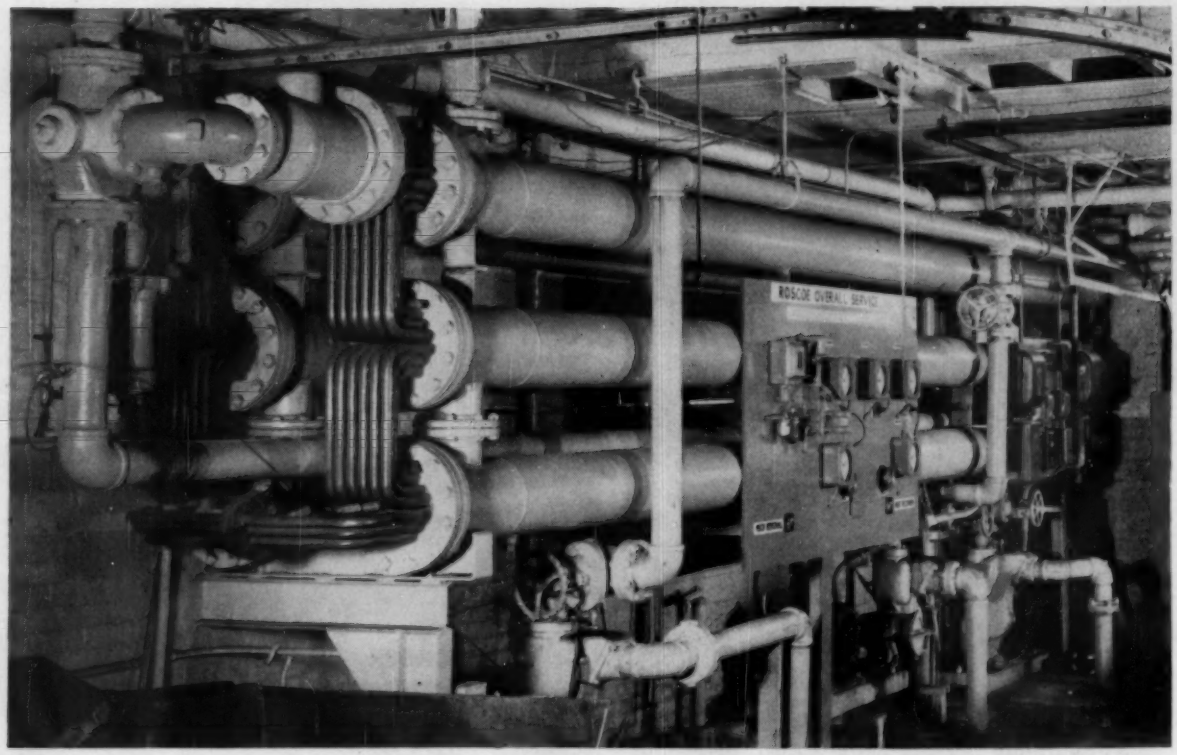
Only Bready Systems of Heat Recovery Give

CONTINUOUS MAXIMUM HEAT RECOVERY

From Waste Water



THE high efficiency of Bready Systems of Heat Recovery is due to their ability to STAY CLEAN. Bready Systems are cleaned *automatically* by timed backflushing — *guaranteed* not to plug or stop up. There is no pit to shovel out — no doors or ports to unbolt — no manual rodding of tubes — no down time.

Bready Systems of Heat Recovery are successfully being put to severe heat recovery conditions where lint and oil deposits would clog and substantially reduce the heat recovery of any ordinary heat exchanger in minutes.

Solids in the waste water are flushed out automatically. There is no costly shutting down of the system for manual cleaning. Occasional chemical cleaning by mechanical recirculation keeps these systems paying off in highest fuel economy and boiler h.p. recovery year after year.

Without obligation, we invite you to find out what savings would be obtained in your own plant. Write, wire or phone Ludell today for more information or a free plant survey.

Ludell *Manufacturing Company*

5200 WEST STATE STREET • MILWAUKEE 8, WISCONSIN

Representatives in the United States, Canada and Alaska

MANUFACTURERS OF BREADY SYSTEMS OF HEAT RECOVERY, BREADY SYSTEMS OF HOT WATER HEATING AND WHEELER SELF-UNLOADING WASHER

The secret of softness

SANDOZ CERANINE HC

Would you like to improve the hand of your goods still further? Test Sandoz softening agent Ceranine HC®. Mills which started using it years ago for cotton and nylon find it equally excellent today for cashmere, acrylic fibers and chlorinated wool. It produces a durable, soft finish, preserves whites effectively, protects freshness. Write us today for a descriptive booklet.

SANDOZ, INC., 61-63 Van Dam Street,
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THINKS AHEAD WITH TEXTILES

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in every case...

stepped up drive efficiency less maintenance

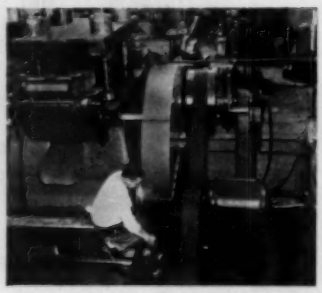
with Wood's complete drives

Matchability of WOOD's "Sure-Grip" V-Belts and Sheaves assures a balanced drive performance. When the "tailored to the groove" V-belts seat themselves in the smooth, uniform sheave grooves they give higher operating efficiency, smoothness at all belt speeds, greater load capacity, ability to absorb shock and pulsating loads, minimum maintenance and lowest power consumption.

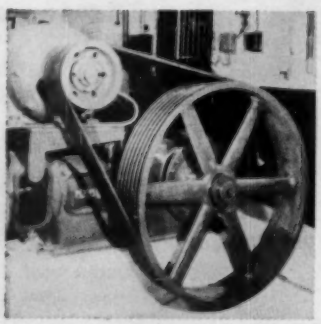
Whether your power transmission problems involve design, installation, maintenance or availability, don't hesitate to call in your WOOD's Industrial Distributor . . . he's a good man to have around because he has been successfully solving just such problems for years, on many different applications . . . he'll offer efficient, economical, practical ideas . . . give you the best in power transmission equipment, expertly designed and manufactured for your particular requirements.

Write us for Bulletin #199 . . . and/or the name of your nearest WOOD's Distributor.

TEXTILE DRIVE—"Maintenance, take-up practically eliminated" . . .



AUTOMATIC PRESS DRIVE—"Maintenance-free performance" . . .



COMPRESSOR DRIVE—"Long service, less downtime" . . .

Woods

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CAMBRIDGE, MASS. • NEWARK, N. J. • DALLAS, TEXAS • CLEVELAND, O.

and there is data on test methods used by the British Society of Dyers and Colorists. A bibliography lists many articles on textile processing.

Other sections include a membership list, organizational structure, and index.

THE DEVELOPMENT OF MARKETS FOR NEW MATERIALS, by E. Raymond Cory; Div. of Research, Graduate School of Business Administration, Harvard University, Boston, Mass.; 265 pages, $4.

This volume examines, with considerable detail, the methods used to develop new markets for three materials —aluminum, fibrous glass, and plastics.

Source material is a series of case studies that describe the efforts of a materials-producing company to build a market for a new end product. The problems that arose at different stages of the programs, and what was done to solve them, are given adequate space.

The book tells how various companies set to work to help fabricators to produce a consumer item and how materials producers often went directly to the consumer with finished articles or with promotional aids to the fabricators of finished articles.

The problems of maintaining product quality where the finished article is made by a number of fabricators drawing raw materials from a single source are shown to be primarily educational.

Observations of what has gone on in market development lead to the conclusion that primary manufacturers have contributed much to the economic growth of the country by being willing to invest huge sums in plant, personnel, and promotional efforts to launch a product that may be years in developing into a money maker.

ASTM STANDARDS ON TEXTILE MATERIALS (With Related Information) (D-13); American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.; 836 pages, heavy paper cover, $6.25.

The latest tentative and standard ASTM tests, specifications, and definitions pertaining to textiles are included in this book, which was prepared by ASTM Committee D-13 on textile materials. There are 126 standards, of which 21 are new and eight that have been revised in the past year. Useful tables, appendices, and an extensive index are included.

SPEED: 12,500 rpm PROBLEMS: none

Quill winding spuns with KIDDE compensators

For 2 years, these winders have operated at 12,500 rpm with the help of new Kidde double disc compensators, specifically designed for use on spuns and natural fiber yarns. At top efficiency, they've turned out the kind of quills that give top loom performance. There are 5 reasons why these Kidde Compensators give such outstanding performance.

1. You get maximum density control with Kidde Compensators, cutting down on quill changes and assuring uniform quill size as well.
2. There is never any build-up of lint because Kidde Compensators are entirely self-cleaning.
3. Tension is automatically maintained at designed strength of yarn.
4. Kidde Compensators assure absolutely uniform quill diameters.
5. Positive tension control is maintained without any abrasion.

Can you afford to do without these "constant watchmen" over your winding process?

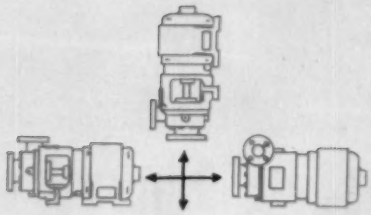
For full information, write to:

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.



you get

versatility too

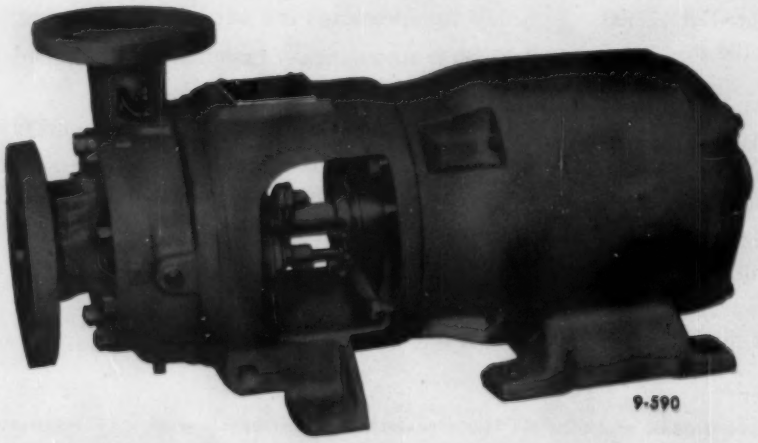
Plant engineers and operating personnel who have had experience with Ingersoll-Rand Motorpumps have found ease of installation of special importance and an extra advantage over and above Motorpump efficiency, dependability, stamina and low overall maintenance.

Motorpumps are compact to save space, they operate in any position, they present no alignment problem, need no baseplate or coupling.

These are important points to consider when you want a pump. See your local Ingersoll-Rand representative or write for the complete bulletin on Motorpumps.

Ingersoll-Rand

11 Broadway, New York 4, N.Y.



MOTORPUMP sizes ¼ to 75 hp / capacities to 2800 gpm / heads to 650 ft

PREVENTIVE MEDICINE

CONTINUED FROM PAGE 99

medicine have come up with impressive figures in evaluating the results of their medical programs. A five-year recap made by one company shows the following results:

- Working days lost because of illness reduced from 5,303 to 3,104, or 41%.
- Workmen's compensation rate per $100 of payroll reduced from 69¢ to 25¢, or 64%.
- Accidents per million work hours reduced from 12 to 2.9, or 75%.

The Liberty Mutual Insurance Co. gives these statistics of what a modern industrial medical program can accomplish:

- A manufacturing plant employing 2,800 people spent $30,000 a year on its medical program and saved $50,000 on its workmen's compensation premiums.
- A manufacturing plant of 575 people reduced labor turnover in a seven-year period from 5.5% to 0.7%.
- A plant employing 600 people reduced absenteeism in a six-year period from 5.8% to 1.7%.
- A manufacturing plant of 4,500 people reduced group insurance losses from $250,000 to $185,000, or 26%.

These are concrete dollars-and-cents savings that cost-conscious management can see and appreciate. Such examples explain why more and more companies are setting up preventive medical programs to supplement their regular medical and accident-prevention programs.

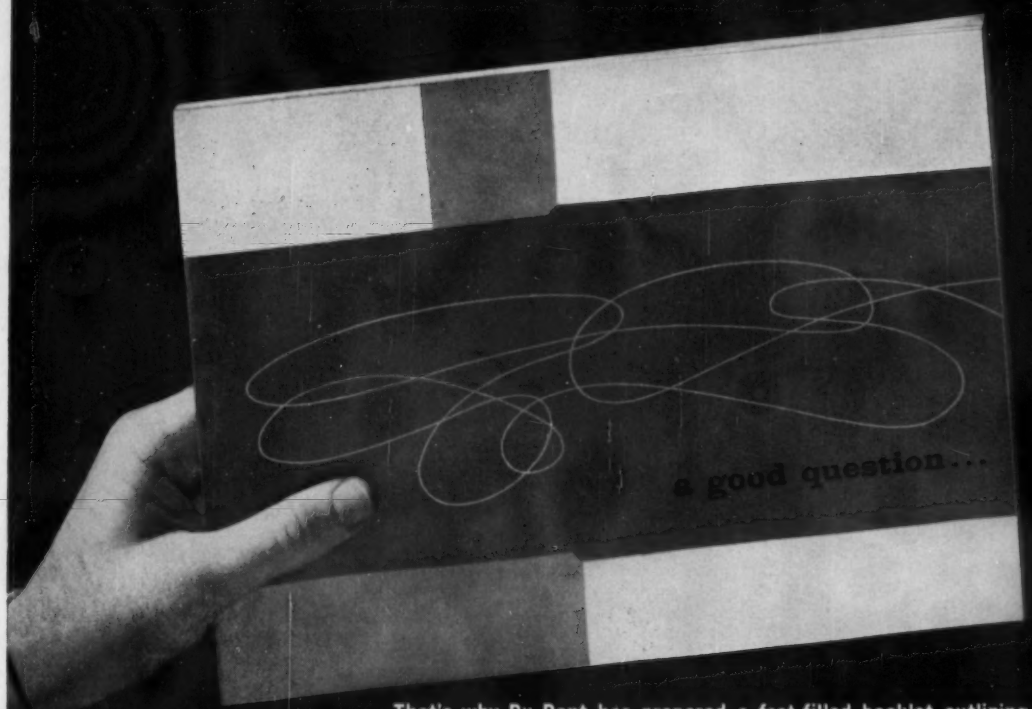
Where OHS Comes In

Although a plant of any size can profit by a medical program that will help keep its employees healthy and locate physical impairments before they become serious, many small plants cannot afford a private, well-staffed clinic. Some of the largest plants prefer to have outside services and consultants to supplement their own plant medical facilities.

Filling a definite need for plants, large or small, in their preventive-medicine programs is Dr. Robertson's Occupational Health Services. OHS has three well-established undertakings, and a fourth is being developed. These projects are:

1. Total industrial health services are provided a number of industrial plants in the Asheville community.
2. Physical examinations for executives on a nationwide basis are provided. This service is such that an executive can enjoy a week's vacation

Trend for 1957-1958 . . .
MORE FABRICS USING METALLICS!



That's why Du Pont has prepared a fact-filled booklet outlining the new qualities found in metallic yarns made with "Mylar"*

Yes—from all indications, the trend in fabrics for 1957-1958 is toward greater use of metallic yarns made with Du Pont "Mylar" polyester film.

Will this trend have an effect on your business? In all probability it will. That's why Du Pont has prepared a new fact-filled booklet that tells why metallics are now completely practical for all types of fashion fabrics.

This 20-page booklet tells why these new, stronger metallics can run on most looms and knitting machines . . . why cotton with metallics can now be bleached or mercerized . . . why wool with metallics can now be carbonized . . . and most important, why metallics can now add sales appeal to all types of fashion fabrics.

*Du Pont manufactures "Mylar"—not finished metallic yarn. "Mylar" is a registered trademark for Du Pont's brand of polyester film.

Metallic Yarn

DU PONT MYLAR® POLYESTER FILM

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

SEND FOR YOUR COPY TODAY!

E. I. du Pont de Nemours & Co. (Inc.)
Film Dept., Room TW, Wilmington 98, Delaware

Please send a copy of your new booklet "A Good Question." I am interested in metallics with "Mylar" for

_____

Name_____

Firm_____

Address_____

City_____ State_____

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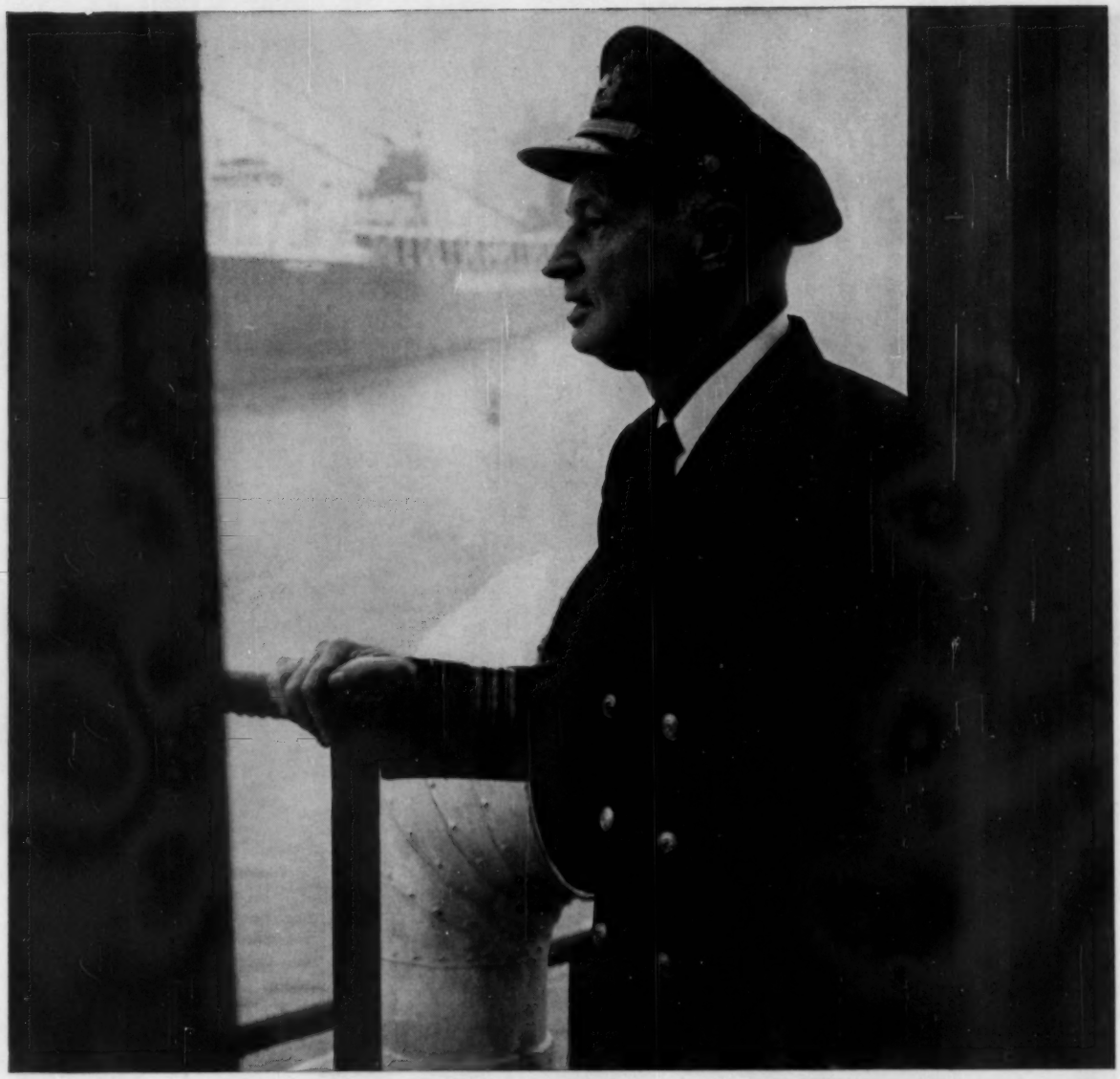

This man helps move 175 carloads of caustic at a time

(He's a deck officer on the Marine Dow-Chem)

After a few terse commands from the bridge, the 18,000-ton *Marine Dow-Chem* glides silently into the night. With her cargo of vital chemicals the *Dow-Chem* plies her way to key Dow terminals. In her storage tanks there is enough caustic soda to fill 175 tank cars.

Typical of the foresighted Dow attitude of solving a problem before it arises, the *Dow-Chem* was commissioned in 1954 with an eye to the future needs of industry. Today, this specially equipped ship is an important part of our vast distribution system.

As demand increases, Dow will continue to lead the way in developing new methods to deliver caustic soda to your doorstep in any form or quantity. THE DOW CHEMICAL COMPANY, Midland, Mich., Dpt. AL 600E-1.

YOU CAN DEPEND ON DOW

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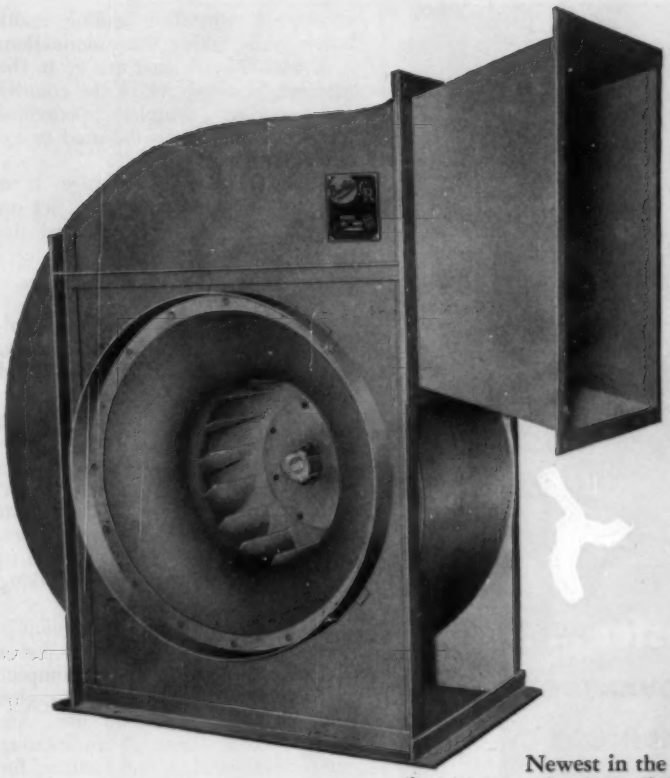


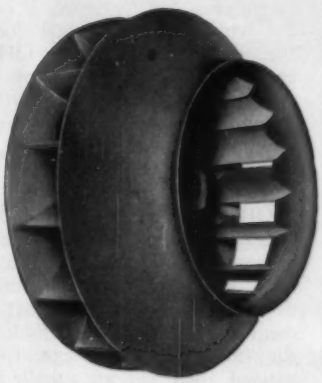
NEW

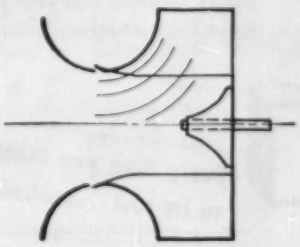
"BUFFALO" TYPE "CR" RADIAL BLADE FAN

Engineered for Your High-Volume High-Pressure Jobs

Newest in the complete line of "Buffalo" Fans, the Type "CR" offers high mechanical efficiency (above 78%) over a broad range, and has high-pressure, high-volume characteristics that make lower first cost possible on many applications. It is also highly suitable for handling dust-laden air efficiently.

In the illustration of the "CR" wheel, you will note the deeply pressed, curving flange. It provides rigidity and meets the curved inlet bell to form a true half-circle air entry path into the wheel (shown in cross section diagram). Wheel blades are radial at tip, curving smoothly forward at inlet. The streamlined housing with divergent outlet further minimizes abrasive effects and aids efficiency by reducing turbulence. While "Buffalo" builds other type fans of higher efficiency than the "CR", its highly desirable balance of favorable first cost, high efficiency and long life assure substantial overall savings in heavy industrial service. Write for new Bulletin FD 205 and see the "Q" Factor* features built into this quality fan.





**The "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.*

BUFFALO FORGE COMPANY

BUFFALO, NEW YORK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buffalo"

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING FORCED DRAFT COOLING HEATING PRESSURE BLOWING

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This package takes a transfer . . .

AS GRACE BLEACHERY TAKES ADVANTAGE OF ANOTHER PRODUCTION-SPEEDING

ALVEY PACKAGE HANDLING INNOVATION

Here in the world's largest bleachery, operated by Springs Cotton Mills, ALVEY-engineered conveyors perform many vital functions. They feed and coordinate the movement of boxes and bales throughout this sprawling, 16-acre plant.

Your mill can benefit by the same skill and experience that planned the package-handling equipment for this mammoth plant. We will be happy to have a textile-experienced ALVEY engineer visit your plant, study your operation and make cost-cutting suggestions. Simply write:

Every time you MANhandle a product, you add to its cost . . . *without* adding to its value.

So, for profit's sake . . . convey your products.

ALVEY

ALVEY CONVEYOR MANUFACTURING COMPANY

9305 Olive Street Road, St. Louis 24, Missouri

Branch Offices in Principal Cities

ALV190

at one of Asheville's leading resort hotels while taking the examination.

3. Mobile units that can go to the premises of any plant in the country and conduct complete periodical physical examinations are used to extend the services of OHS.

4. In the formative stage is a plan to help industrial plants set up and operate their own medical departments.

Mobile Clinic Is Well Planned

The basic program of OHS examinations is family medical history, personal medical history, skin-fold measurement, Audiogram, Orthorator test, blood pressure, chest X-ray, electrocardiogram, tonometry, complete physical examination, and laboratory checks. This program far exceeds the customary examination given apparently healthy workers. About 40 people can be examined in the mobile clinic in an 8-hr. working day.

OHS's mobile clinic is ingeniously housed. The examining trailer has a folding section that makes it compact for moving and opens out to give additional space when in use. Another trailer contains air-conditioning equipment, supplies, and facilities for clinic personnel.

Services of OHS are bought by the plants desiring them, and the plants receive cumulative reports of the clinical findings. But the individual records of workers examined are kept confidential. The worker receives a report with recommendations to consult his physician if symptoms indicate a need for treatment. If he gives the name of his personal doctor at the time of examination, OHS will also send the doctor a copy of the report, with offers of any further information or assistance that might be required.

Treatment Is Often Needed

OHS does no treating of diseases but offers its full facilities to plant physicians, family doctors, and others who treat the cases it discovers through examinations. That treatment is often needed is disclosed by the fact that of 500 executives examined, men who are usually health-conscious, 40.6% had defects not known before the examination.

Today more and more industrial plants are realizing that the employees are their most valuable assets and that preventive medicine is a practical tool to protect the investment it has in its trained workers. Protecting the health of its employees is not just a humanitarian project; it is also good business.

To quote Dr. Robertson: "By hav-

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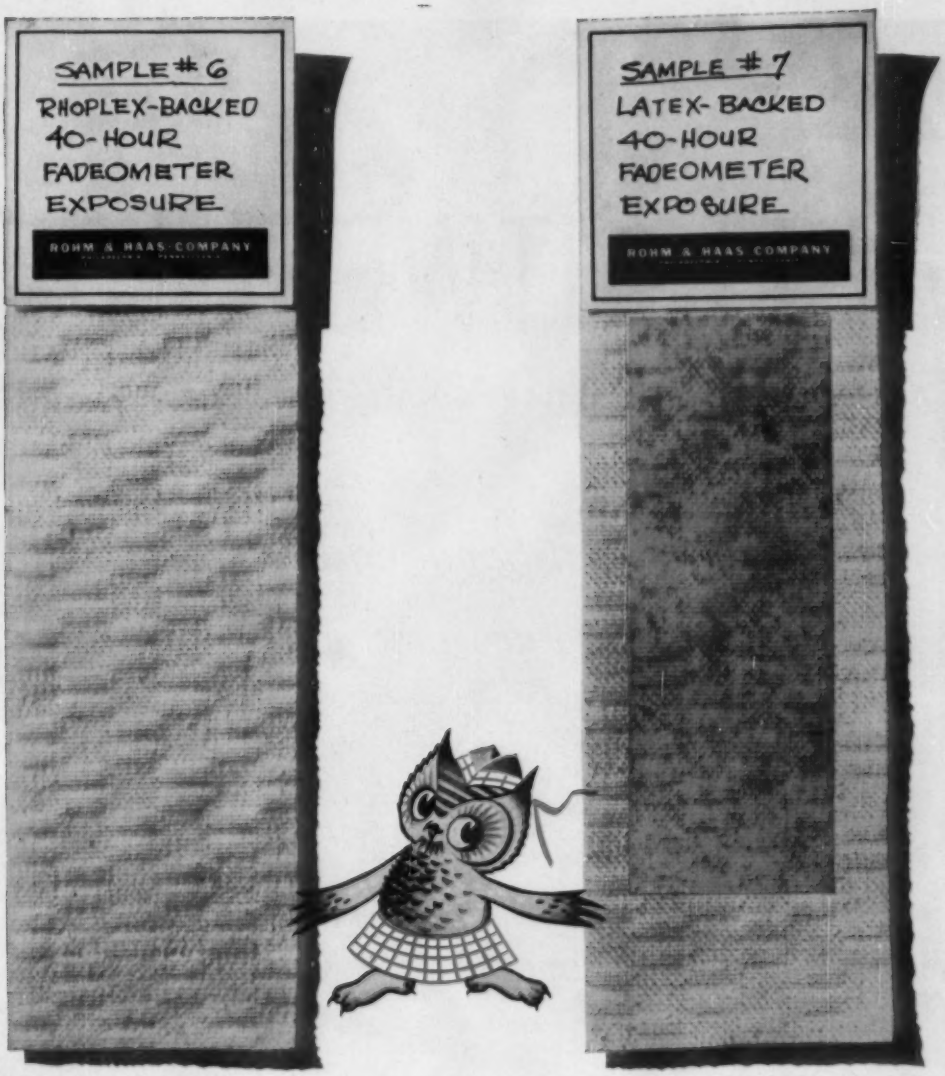

Which fabric has the RHOPLEX backing?

Even 40 hours in a Fade-O-meter couldn't discolor or stiffen the backing of the automotive upholstery fabric sample at left. It's made with RHOPLEX resin! But the latex backing on the other sample became badly discolored and brittle after the same exposure to heat and light.

That's why RHOPLEX backing resins are being used more and more on automotive and furniture upholstery, carpets, and non-woven fabrics. The acrylic film not only resists aging, but also provides excellent bonding and curbs unraveling. And unlike latex, RHOPLEX backings need no curing.
Write today to learn how RHOPLEX backings can improve your fabrics.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

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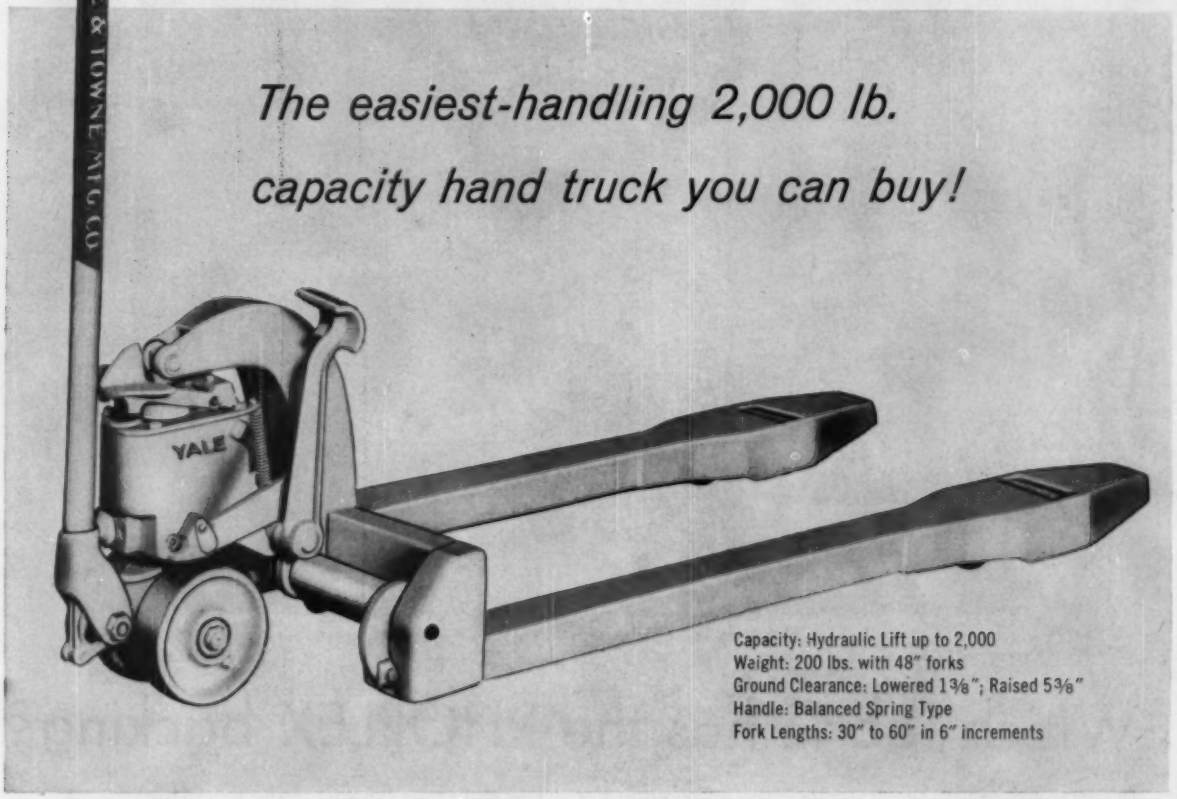
YALE

LIGHTWEIGHT

MODEL A HYDRAULIC HAND LIFT PALLET TRUCK

The easiest-handling 2,000 lb. capacity hand truck you can buy!



Capacity: Hydraulic Lift up to 2,000
Weight: 200 lbs. with 48" forks
Ground Clearance: Lowered 1⅜"; Raised 5⅜"
Handle: Balanced Spring Type
Fork Lengths: 30" to 60" in 6" increments

Easy handling Yale Model A Hand Pallet Trucks are preferred by workers because there's less deadweight to pull or push...maneuvering in crammed quarters is easier. Furthermore, with easy foot pedal strokes the operator can lift a capacity load of 2,000 lbs. a full 4 inches...and clear the load over 5" from the ground. This extra underclearance makes difficult rampwork easy and safe. And, dual-articulated steering wheels give greater ease of steering, load stability and smoother handling over rough surfaces...while smooth-acting lowering mechanism protects loads from shocks.

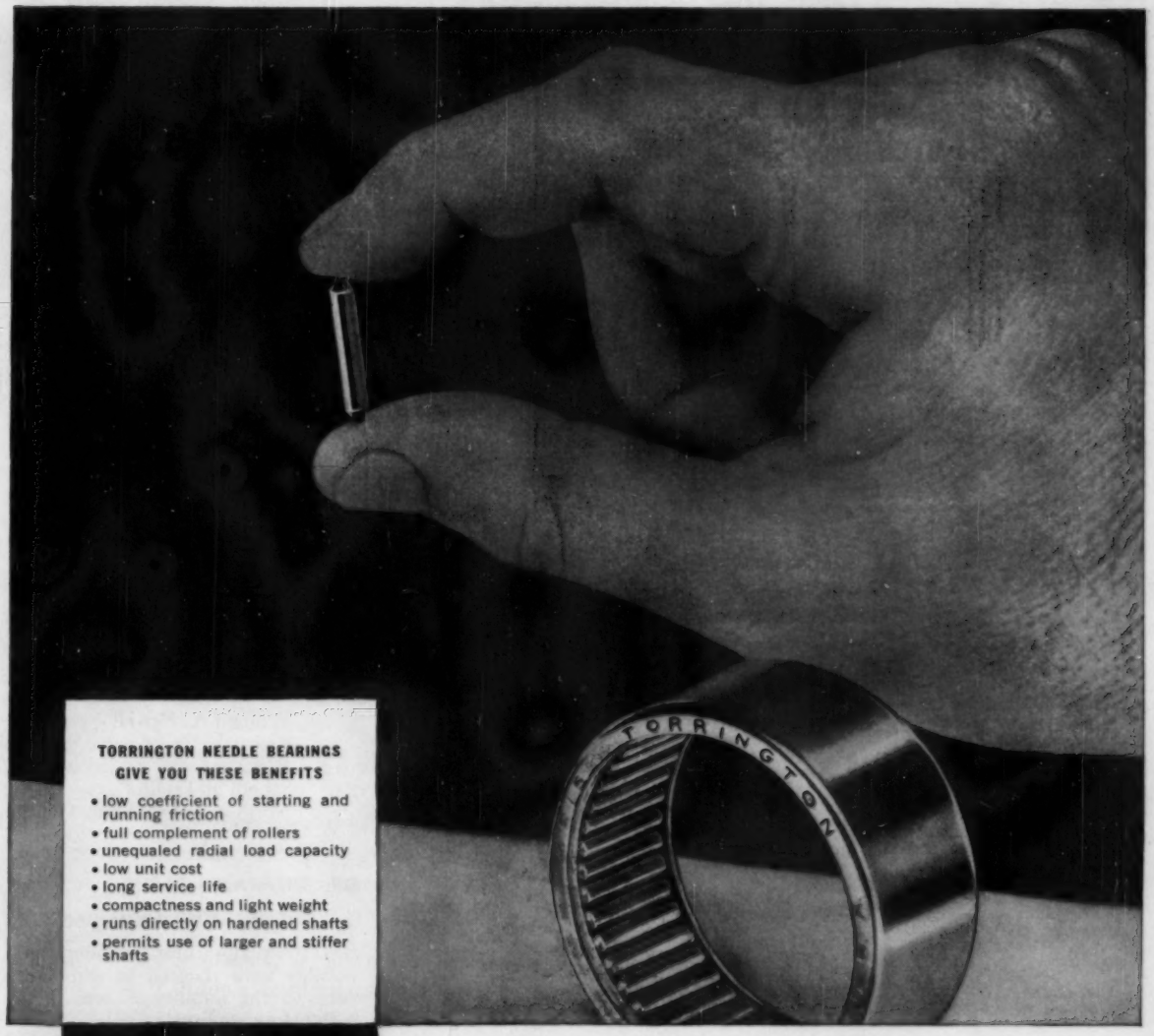
In your plant, warehouse or shipping area, new Yale Lightweight Hand Trucks eliminate time-consuming piece-by-piece handling...keep materials flowing smoothly to avoid production slowdowns...help workers move more tonnage per shift...reduce operator fatigue. These benefits apply to your operation whether you use one Yale Hand Truck or a number of them as part of an integrated handling system.

Yale Model A Hand Trucks are now in full production and ready for fast delivery. For full facts, write The Yale & Towne Mfg. Co., Phila. 15, Pa., Dept. A-994.

YALE* **INDUSTRIAL LIFT TRUCKS AND HOISTS**

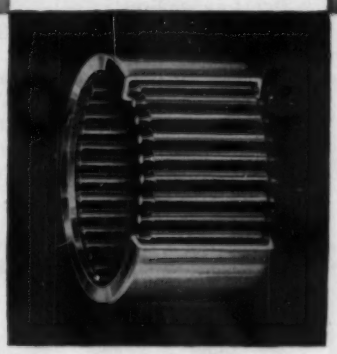
*REG. U. S. PAT. OFF.

Gasoline, Electric & LP-Gas Industrial Lift Trucks • *Worksavers* • Warehousers • Hand Trucks • Hand and Electric Hoists



TORRINGTON NEEDLE BEARINGS GIVE YOU THESE BENEFITS

- low coefficient of starting and running friction
- full complement of rollers
- unequaled radial load capacity
- low unit cost
- long service life
- compactness and light weight
- runs directly on hardened shafts
- permits use of larger and stiffer shafts



Close-up of precision!

This Needle Roller, key to the operation of the Torrington Needle Bearing, is a microscopically precise example of Torrington craftsmanship.

In every manufacturing step, from selection of bearing materials to final polishing, these rollers are checked with strict quality control.

A full complement of rollers, mounted in a precision-made, case-hardened retaining shell, provides a maximum number of contact lines, giving the Torrington Needle Bearing a higher radial load capacity than any other anti-friction bearing of comparable size. Rollers operate smoothly with low coefficient of starting and running friction.

Torrington's experience with Needle Bearings spans the history of their development for thousands of successful applications. In seeing that you get every last ounce of performance these unique bearings can deliver, your Torrington representative is an expert: call on him at any time. *The Torrington Company*, Torrington, Conn.; South Bend 21, Ind.

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

NEEDLE ROLLERS • SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • THRUST

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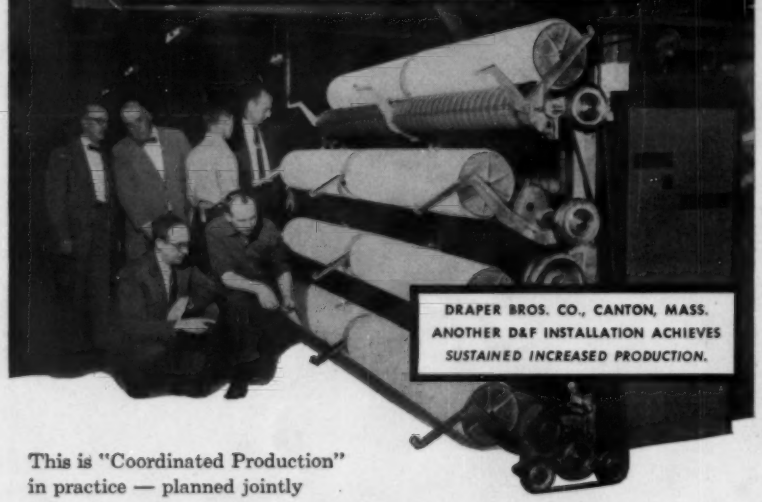
These men *know* the profitable meaning
of Davis & Furber
"Coordinated Production"



This is "Coordinated Production" in practice — planned jointly with Draper Bros. and Davis & Furber — executed and carried through in *all phases* by D&F as *one* qualified, responsible source. Working closely with the customer, through their Technical Service and Counsel, here's how Davis & Furber can do the same for you.

The FIRST part of D&F's established plan to increase your mill production is an "in-the-mill" survey with recommendations by D&F service technicians. They know mill operation from nationwide experience . . . and they know best what D&F equipment can do.

The SECOND step toward "Coordinated Production" is the special adaptation, when necessary, of new equipment to your specific requirements by D&F design engineers, or the modernizing of existing equipment to meet present needs.

The THIRD point is the use of D&F trained erectors and technicians to install, adjust, and set up actual production runs on D&F equipment, with follow-up to assure peak performance and production.

Davis & Furber and Draper operators and management, working hand-in-hand, have fulfilled the promises of D&F "Coordinated Production" in this woolen mill. Its features have benefited others. Check and see how they can benefit you. Call Davis & Furber now for complete details, at either North Andover, Mass., or Charlotte, N. C.

Helpful facts for mill managers, superintendents, overseers. Monthly D&F NEWS — copies on request.

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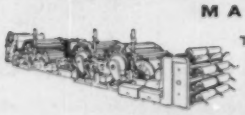
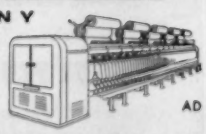


TEXTILE MACHINERY DESIGNERS AND MANUFACTURERS
North Andover, Mass.
Charlotte, North Carolina



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ing periodic examinations, trends in employee health may be recognized and preventive measures applied. Our experience with over 49,000 employees has proved that physical examinations are beneficial to both employer and employee."

N. C. STATE REPLY

CONTINUED FROM PAGE 103

Regardless of the validity of these particular data and conclusions, however, research such as described in this report produces two types of results—one far more important than the other. The first, and least important, is a body of specific rules for carding cotton. Far more important is the development of attitudes among mill men that there are different ways of carding cotton and that perhaps the job can be done better with a few changes. Development of such attitudes is the real purpose and product of this and any research, and the beneficial effects of such attitudes can extend far beyond the walls of the card room.

William A. Newell
Research Coordinator
Department of Research
School of Textiles
North Carolina State College

DR. SHEEHAN'S REPLY

CONTINUED FROM PAGE 103

the various laps. Less blending would possibly have resulted in real differences in the number of neps in the laps before carding.

Conclusions based on statistical differences are never dangerous, regardless of the magnitude of the nep count. It appears from the N. C. State statement that both the least important result and the most important result of research work are the development of attitudes. How about data, conclusions, new theories?

Dr. W. C. Sheehan
Richmond, Va.

HIGH DOFFER SPEED

CONTINUED FROM PAGE 102

with production; but after a production of about 8 lbs. per hr. is attained, further increases result in an appreciable nep-count increase up to about 16 lbs. per hr.

From an examination of Mr. Bentley's report and the knowledge obtained from these studies, it appears that at some point between 16 and 25 lbs. per hr. the nep count either

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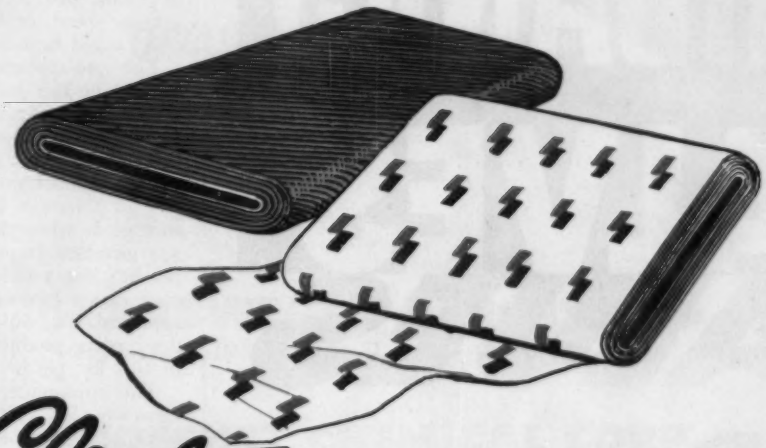
from denims to dimities . . .



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starches smooth production

Manufacturers of all kinds of fabrics know they can rely on Clinton starches. In warp sizing — in finishing — Clinton starches speed production, improve the appearance and body of fabrics, from heavy twills and denims to sheer summer-weights.

Consistently good results with Clinton starches are the result of Clinton's continuous laboratory control. In fact, many mills use Clinton starches as a standard of comparison.

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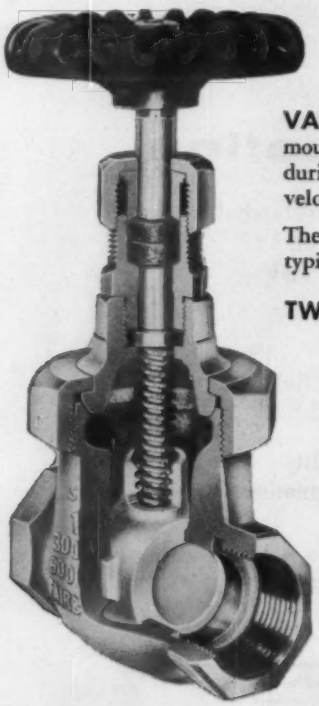
FAIRBANKS VALVES VALUES



VALUE — QUALITY — FAIRBANKS synonymous today because of the reputation achieved during a half century of progressive valve development and field service dependability.

The 0260—300 pound Bronze Gate Valve—is a typical valve, a typical value.

TWO-PIECE UNION BONNET . . .
Strength, quick easy disassembly, no sliding or scraping of seat between body and bonnet.

RADIAL SEAT OF UNION BONNET . . .
Leakproof body-bonnet joint, rigid alignment.

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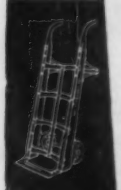
guided for tight closure, corrosion resistant.

Fig. 0260 BRONZE GATE VALVE—
NON RISING STEM
300 lbs. steam working pressure at 550°F.
(0264—BRONZE GATE VALVE—RISING STEM)



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levels off (as with low production rates) or begins to decrease.

Skein Strength Is Unaffected

The skein strength of the warp-twist 16s yarn prepared from the card sliver was found to be unaffected by the draft, production rate, increased lickerin speed, or an increase in the doffer speed from 9.1 to 13.8 rpm.

The yarn-appearance grade was unaffected by the draft when draft was varied by changing the feed-roll speed, lickerin speed, or doffer speed.

Appearance was affected by the increased production rate in that there was no difference in the yarn-appearance grade when the card production was increased from 6.64 to 7.84 lbs. per hr.; but a difference of one-half grade and a card-web nep increase of approximately 50% resulted when the carding production was increased to 10.7 lbs. per hr.

The appearance grades of all the yarns were low. This fact is attributed to the excessive blending required to make the cottons constituting each lap similar to and representative of the over-all sample.

REFERENCES

1. Bentley, E. A., TEXTILE WORLD, May, '52, p. 107
2. Bogdan, J. F., TEXTILE WORLD, Oct., '49, pp. 128 and 142
3. *Ibid*, 138-139 (1949)
4. Bogdan, J. F., and Feng, Ivan Y. T., TEXTILE WORLD, May, '52, p. 91
5. Bogdan, J. F., *Textile Industries*, Jan., '50, p. 98
6. Campbell, M. E., Cotton Research Clinic (1950)
7. Loveless, Howard, TEXTILE WORLD, Aug., '50, p. 110
8. Wigington, J. T., "Effect of Card Speeds and Production Rates on the Quality of Cotton Yarn Manufactured from Five Different Grades of Cotton," presented before the American Cotton Manufacturers Institute, Inc.

CONTINUOUS BLEACHING

CONTINUED FROM PAGE 107

A seven-stage Scott weir system cascades 180° wash water onto the goods and pulls the excess water through the fabrics as it passes over perforated plates that are collected to the inlet side of powerful centrifugal pumps.

After the goods leave the mercerizer, they are run through another open washer, squeezed out, and pulled into the scouring stage.

To scour the goods, Dominion saturates them in a 3% solution of

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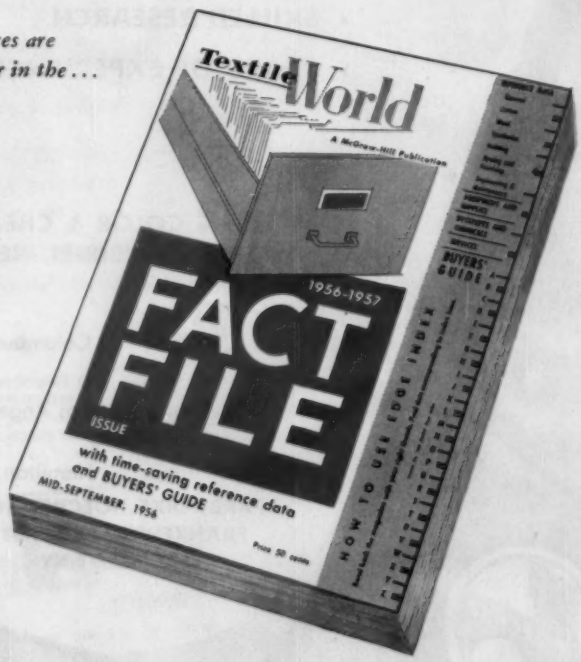
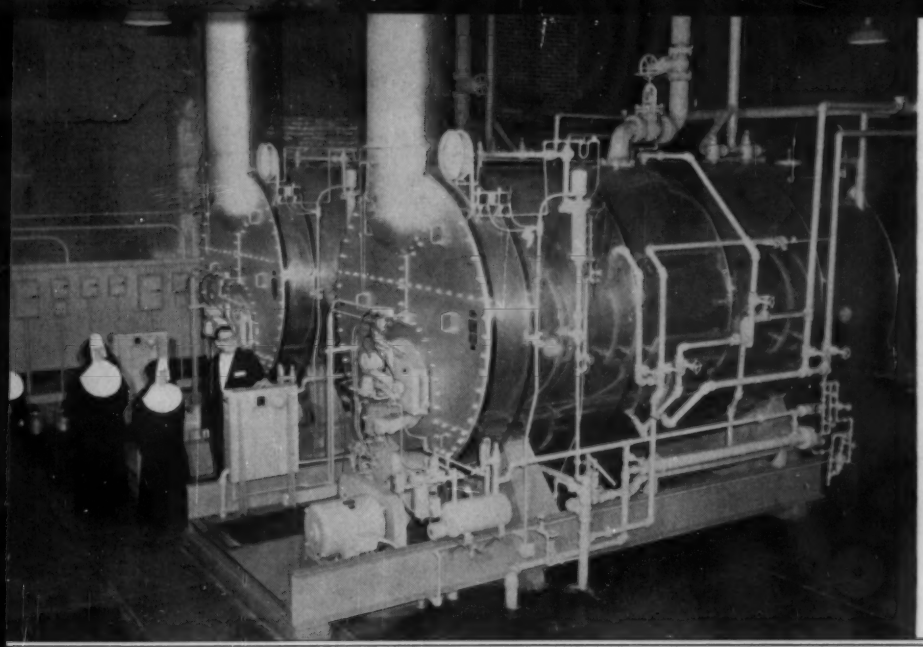
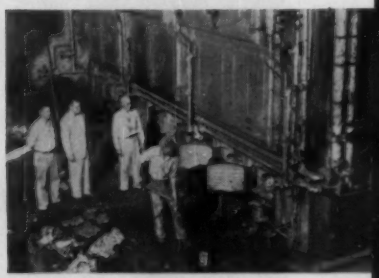




NEW BOILERS combine efficiency and handsome appearance. Edward S. Green, Edgemont (Pa.), contractor, was responsible for this superior installation. Pictured left to right are: Sister M. Cor Immaculatum, Immaculata College Treasurer, Sister Jean Marie, Community Treasurer, Reverend Mother Maria Alma, Superior General and Salvatore S. Guzzardi, Consulting Engineer.



OLD BOILER was a coal-fired HRT model — typical of many replaced by modern Cleaver-Brooks oil, gas or combination oil/gas fired boilers.

Consulting engineer* tells how Immaculata College boiler modernization saves estimated $12,000 each year

Salvatore S. Guzzardi CONSULTING ENGINEER

2928 LEWIS TOWER · PHILADELPHIA 2, PA · KINGSLEY 6-2777

December 20, 1956

Mr. John C. Cleaver, President
Cleaver-Brooks Company

Dear Mr. Cleaver:

Recently our office was retained to make an impartial, exhaustive engineering study of the 40-year old boiler plant and steam system at Immaculata College, Immaculata, Pa., which is staffed by the Catholic order, Sisters of the Immaculate Heart of Mary.

As a result of our recommendations, two fully automatic, oil-fired, 350 bhp Cleaver-Brooks package steam boilers, (12,000 lbs/hr steam each), replaced three hand-fired coal boilers and steam-driven auxiliaries. The new boilers are operating at approximately 80% boiler efficiency year-round.

Conversion of coal firing to automatic #6 oil firing and increased boiler efficiency has reduced the fuel cost approximately 50% -- amounting to a saving of $12,000 each year.

The Cleaver-Brooks boilers burn #6 oil and operate automatically at 80 pounds steam pressure 'round the clock -- without the presence of operators in the boiler room. Eliminating boiler plant labor saves the College $7,500 each year.

The cost of the boiler plant modernization will be paid for out of fuel and labor savings in approximately 2-1/2 years.

Commendation for this outstanding performance of the Immaculata boiler plant is due to your well-engineered boiler design and to the cooperation of your skilled servicemen. The results achieved were so impressive that the Sisters subsequently modernized their Villa Maria Convent, Westchester, Pa., with two 100-bhp Cleaver-Brooks boilers.

Sincerely yours,

Salvatore S Guzzardi

***Salvatore S. Guzzardi** — Award-winning head of an organization of experienced professional engineers specializing in modernizing power service facilities. Clients include: Pennsylvania University, Baldwin-Lima-Hamilton Corp., H. Daroff & Sons, Sun Shipbuilding & Dry Dock Co. and City of Philadelphia.

Surveys show 32% of boilers now in service are 30 years old; 56% are over 20 years old

If your boiler fits this description, we recommend an immediate survey. "In 90% of the plants surveyed," summarizes Mr. Guzzardi, "we have found it possible to save thousands of dollars and to pay for the recommended improvements out of annual savings within one to three years."

Again and again the proved economy of Cleaver-Brooks four-pass, forced-draft boiler design results in savings reports as impressive as this. Contact your nearest Cleaver-Brooks representative for more facts on the complete line of steam and hot water boilers — 19 sizes, 130 models, 15 to 600 hp — for heating or processing. Or write Cleaver-Brooks Company, Dept. D, 361 E. Keefe Ave., Milwaukee 12, Wis., U.S.A. Cable Address: CLEBRO — Milwaukee — all codes

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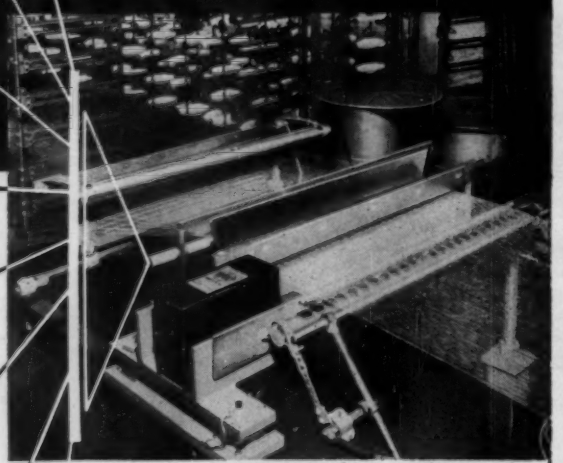
guarantees the relative quality of warped yarn for warp knitted cloth or woven cloth fabrics by establishing **The Lindly Count**.

Accurately and economically, the Lindly Automatic Yarn Inspector detects yarn faults. Similarly, it sets up a count or stop motion on those faults that are larger than your operation will permit.

YOU DETERMINE QUALITY . . . AND YOU CAN STATE THAT QUALITY IN TERMS OF **THE LINDLY COUNT**



Lindly Automatic Yarn Inspector inserted in a warping operation.

OTHER FEATURES—Improve quality through controlled tension during warping . . . improve quality of finished woven or warp knitted fabrics . . . assure more even dyeing.

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caustic soda at 140° F. and runs them into a Mathieson open-width steamer built by Proctor & Schwartz. Here the temperature is kept at 210° F., and the goods lie on a three-stage conveyor for approximately 55 mins. Leaving the steamer, the goods are again thoroughly washed at 140 to 160° F. in a five-compartment open washer and pass into the final bleaching stage.

For the bleach, Dominion uses a working solution that contains 1.2 to 1.3% H_2O_2, 2 to 3% sodium silicate, and 0.1% caustic soda.

The goods are saturated in this solution and are riffled into another Mathieson steamer where they remain for 45 mins. at 210° F.

The final wash is through another five-compartment washer where the wash water is maintained at 140° F. The goods are then led up to the second floor, where they are dried on a stack of high-pressure cans. At the take-off end, the cans are equipped with a Simpson winder and also a swing so that the goods can be removed in rolls or plaited down in a box.

PLANT-MAINTENANCE SHOW

CONTINUED FROM PAGE 117

Hand Soap

A cream deodorant soap for wash rooms was shown by Sugar Beet Products Co., Saginaw, Mich. It eliminates waste in wash rooms and showers because it is made to be dispensed in precise amounts in the company's washstand. (A-87)

Hose Reel

A dual reel for oxyacetylene-welding hose was featured by Clifford B. Hannay & Son, Inc., Westerlo, N. Y. The reel also has fire-fighting equipment. (A-88)

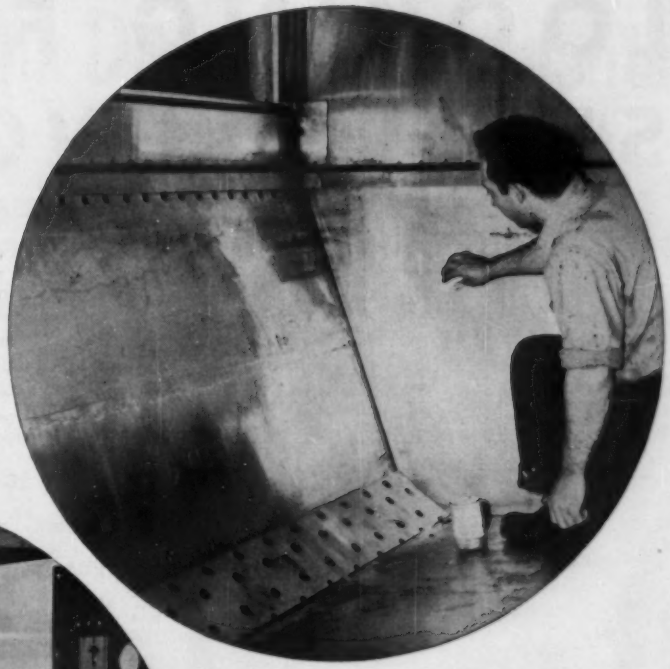
Electric Sweeper

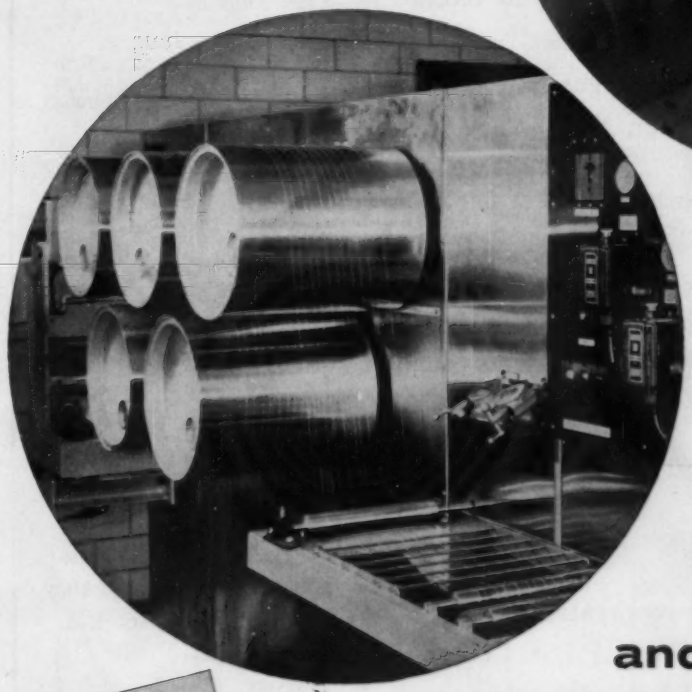
An electric-powered sweeper that can be used a full 8-hr. shift without recharging was demonstrated by Wayne Mfg. Co., Pomona, Calif. The machine has a built-in battery charger that's plugged into a 110-v. outlet. (A-89)

Tool-Storage Board

Steel peg boards to store tools near production machines were exhibited

in the **DYE TUBS** *and* **BLEACH**





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You collect on plenty of advantages! Allegheny Stainless helps to maintain high quality in the product. Its easy maintenance minimizes costly cleaning time and production tie-ups . . . assures true colors and fast change-overs. Even more important, stainless steel means long equipment life and freedom from wear. *No other material combines all these desirable properties with such long-run* economy. • Let us show you how stainless can help to improve operations and cut costs. ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.***

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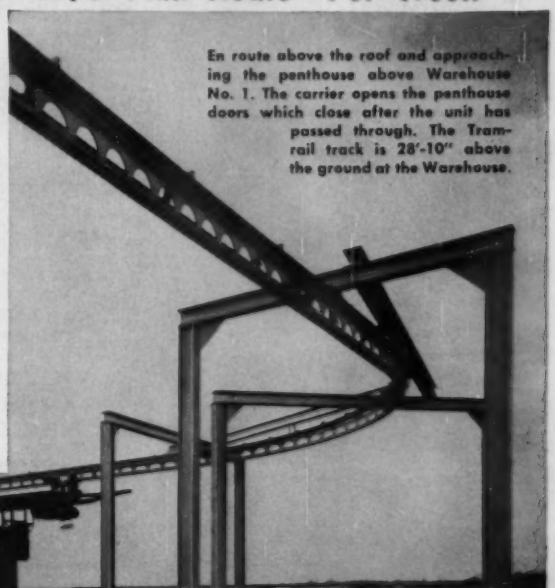
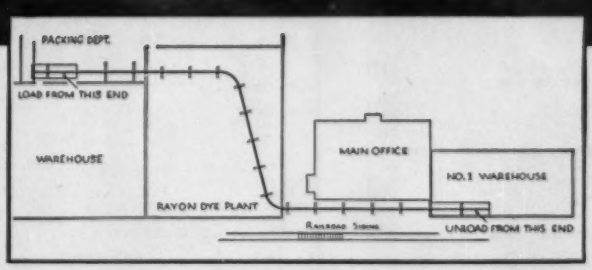
By installing a Cleveland Tramrail automatic dispatch system that extends partly over roof tops and partly between buildings, the North Carolina Finishing Co., Salisbury, N. C., was able to successfully link two widely separated departments and secure the same advantages that would be obtained if they were adjacent to each other.

This system has been in operation since 1949. It is an excellent example of the application of a bit of imagination to overcome an awkward and costly materials handling situation. It reduces the time for movement of packaged rayon cloth from the Packing Department to the No. 1 Warehouse by 240 man-hours per week.

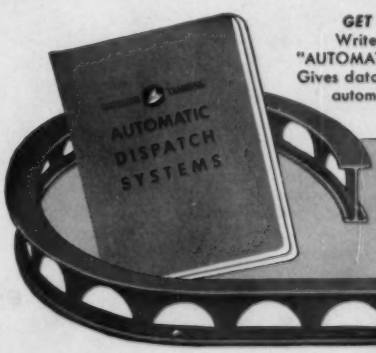
A wide variety of Cleveland Tramrail automatic dispatch systems is now serving industry. For real savings we suggest that you get the facts on this modern method of handling materials.



En route above the roof and approaching the penthouse above Warehouse No. 1. The carrier opens the penthouse doors which close after the unit has passed through. The Tramrail track is 28'-10" above the ground at the Warehouse.



6 to 8 cartons weighing 100 to 400 lbs. each are loaded into the Tramrail freight van. The button on wall, at left, sends the van on its way, first upward through ceiling opening, and then forward on outside roof track. The van measures 4'-0" x 8'-0" x 6'-6" high.



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Joseph T. Ryerson & Son, Inc. Plants at: New York • Boston • Wallingford, Conn. • Philadelphia • Charlotte, N. C. • Cincinnati • Cleveland • Detroit Pittsburgh • Buffalo • Chicago • Milwaukee • St. Louis • Los Angeles San Francisco • Spokane • Seattle

by Standard Pressed Steel Co., Jenkintown, Pa. The boards are 34 ins. high and 24 ins. wide; holes are on 1-in. centers. Several boards can be mounted side by side to achieve any desired length. (A-90)

Electrical Instruments

A line of instruments for a.c. and d.c. electrical measurements were displayed by General Electric Co., Schenectady, N. Y. Voltmeters, ammeters, millivoltmeters, and other instruments were included in the display. (A-91)

Double-Angle V-Belt

A double-V-cross-sectional V-belt was demonstrated by Dayton Rubber Co., Dayton, Ohio. The belt provides strong wedging action on each side so that several sheaves can be operated from a common driver without crossing the belt. The belt pulls its load on sheaves that turn in the same or reverse direction. (A-92)

Pipe Saw

A portable guillotine-type pipe saw that speeds cuts in tight places was demonstrated by E. H. Wachs Co., Chicago, Ill. The saw cuts 2- to 8-in. cast-iron and steel pipe. It weighs only 105 lbs. and operates in a space 25 ins. wide. (A-93)

Low-Horsepower V-Belt

A specialized fractional-horsepower V-belt that is quiet, vibrationless, and dustless was exhibited by Dayton Rubber Co., Dayton, Ohio. It is designed for light-duty drives such as furnace blowers, air-conditioning blowers, window fans, and room coolers. (A-94)

Dry-Fluid Card Drive

CONTINUED FROM PAGE 138

The wiring conduits from the switches to the drives run down the wall and under the floor for neatness and safety. About 2 hrs. were required to install the drive on each card.

Speeds Are Conventional

Cards equipped with the dry-fluid drives are operated at Kings Mountain with the same speeds and settings as the shaft-driven cards. For example,

Cibalan® Blue FBL

CIBA

Bring Your Dyeing Up-To-Date. In its phenomenal growth the Cibalan range of fast dyes for wool, nylon and silk is unequalled by any similar group of colors. Cibalan Blue FBL, the 29th and newest member of the group, has all the important Cibalan properties that lead to consumer enthusiasm. The slightly reddish blue color of Cibalan Blue FBL exhibits very good light and wash fastness and does not change under artificial light.

Cibalan Blue FBL dyes level shades from neutral and acidic baths, imparting fastness without after treatment or development. **For color quality and economy of application—take a look at Cibalan Blue FBL.**

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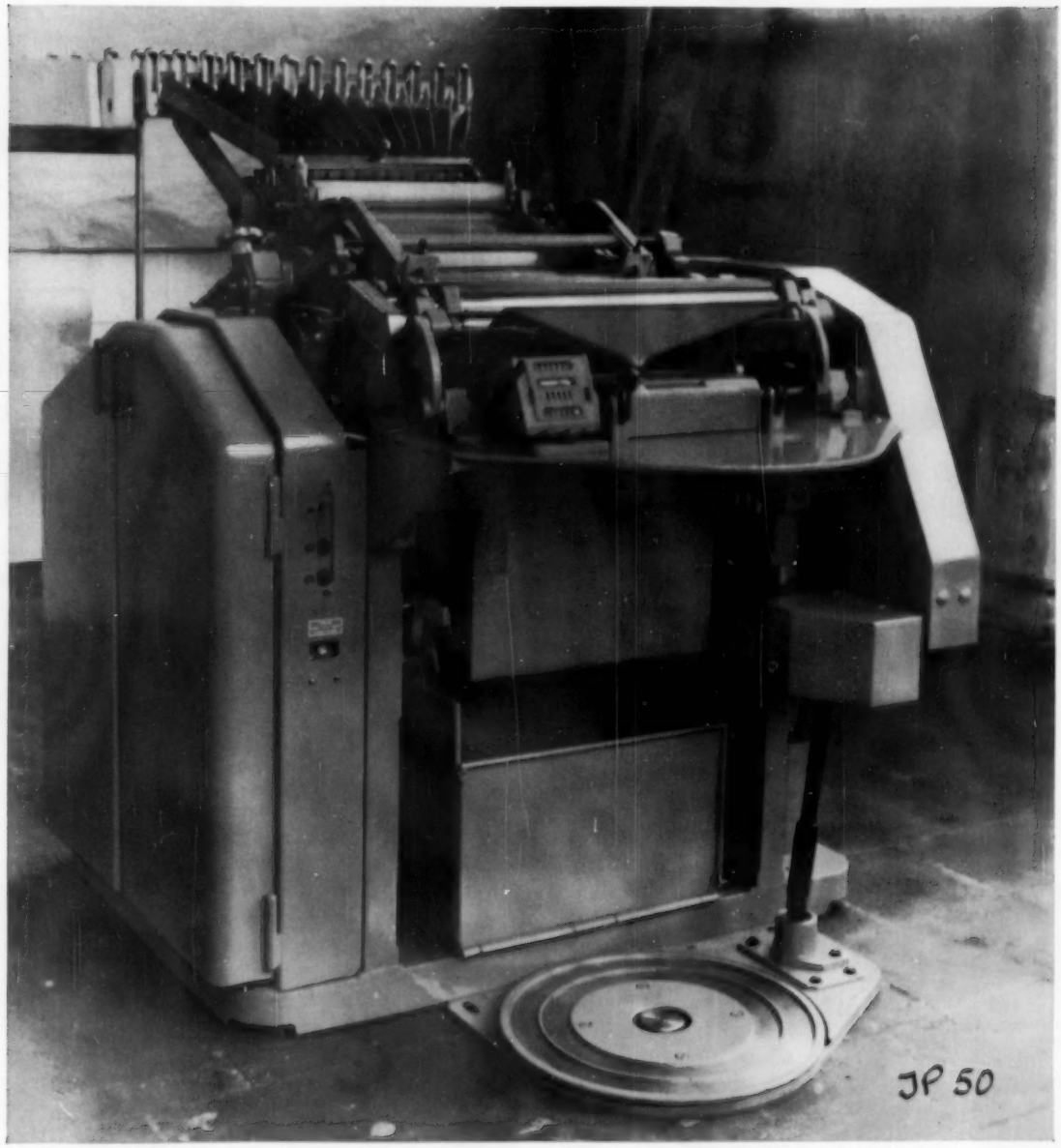
SCHLUMBERGER COMB

***for French-Type* Worsted Mills**



OUTSTANDING for ready accessibility of all operating parts (including cylindrical comb) and for remarkable cleanliness of product. Settings made quickly.

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Ask your Monsanto Representative about

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Synthetic Sizes

Stymer S tells a uniformly excellent story full of positive values for the mill—from non-souring stability that permits large batches to be made up at one time, to easy and complete de-sizing of even long-stored cloth.

Stymer solutions won't gel in the size box, don't build up on cans. There's seldom need for can covers. Leasing in size is standard practice.

The billions of yards of first quality cloth woven from Stymer sized yarns warrant your investigation of this unusually uniform, tough, and flexible size for filament acetate and viscose. Ask your Monsanto representative how Stymer S can cut your costs. For technical data and samples, write Monsanto Chemical Company, Plastic Div., Room 1902, Springfield 2, Mass.

MONSANTO®

Other Monsanto Textile Chemicals are: RESLOOM E-50 . . . for finishes with outstanding dimensional stability and wrinkle recovery . . . with no stiffness or harshness . . . and other RESLOOM finishing resins for cottons, woolens, rayons, viscose, and synthetics . . . and AC CATALYSTS . . . for fast, uniform curing of melamine, urea, and other thermosetting finishing resins.*

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BETTER
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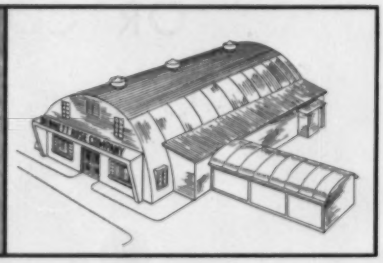
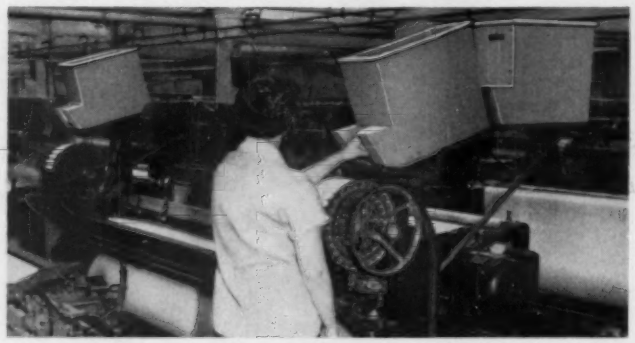
FASTER



CUT WEAVE ROOM COSTS WITH OUR NEW TYPE BATTERY FILLING EQUIPMENT



This photo shows our equipment in use at one of the large weave rooms in one of the South's most progressive textile plant where they increased plugging from 480 bobbins per hour to 1050 per hour on Quill yarn and from 480 to 860 bobbins per hour on Spun yarn. It reduces costs of handling filling at the batteries. We can help you cut weave room costs.

We are equipped for skilled fabrication:

- **Steel**
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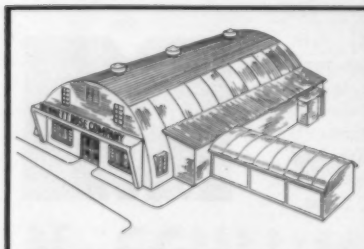
- **Aluminum**

Let us know your needs

New, sturdy DOFF TRUCK used to transport filling from spinning room to weave room with greater ease. Let us help you save handling costs with our New Type Boxes, Trucks and Racks.

FULL INFORMATION ABOUT OUR EQUIPMENT WILL BE FURNISHED ON REQUEST
CALL: SPARTANBURG 3-9223



BENNETT ROSE COMPANY
P. O. BOX 8
ROEBUCK, S. C.

speeds are: cylinder, 175 rpm., a doffer, 6¼ rpm.; Hckerin, 460 rpm., and flats, 1¾ ins. per min. A 60-grain sliver is made at 9 lbs. per hr. from a 15-oz. lap. Cotton is 1 1/32-in. SLB Middling from the Memphis and Delta areas.

The cards are ground 8 hrs. every 16 days, except for one machine (without individual drive) equipped with Hollingsworth metallic clothing. The mill plans to equip all cards with metallic clothing as the fillet clothing wears out. Completion of this operation will take some time, since fillet clothing lasts about 15 years at Kings Mountain.

Summarizing the mill's experience with the dry-fluid drive, Superintendent J. H. Patterson says, "The drive builds up to speed rapidly and smoothly, and sliver seems better than when the cards had overhead shafting.

"Another advantage is the use of small 1½-hp. motors, which require less space and power than the 5-hp. motors ordinarily used for individual card drives. These motors produce some extra heat, but apparently the heat does not affect their efficiency or maintenance.

"Elimination of overhead belts and pulleys makes the carding operation easier and safer. Maintenance is reduced and the cards are easier to start."

MOLDED-PLASTIC SHUTTLES

CONTINUED FROM PAGE 119

on E and X-2 model Draper looms. The 40-in. E model looms operate at 160 ppm., and the 44-in. X-2 looms have a speed of 172 ppm. Poplin, denim, sateen, and other fabrics are woven. Warp counts are 9s to 30s and filling counts are 6s to 26s.

Added Service Life Repays Cost

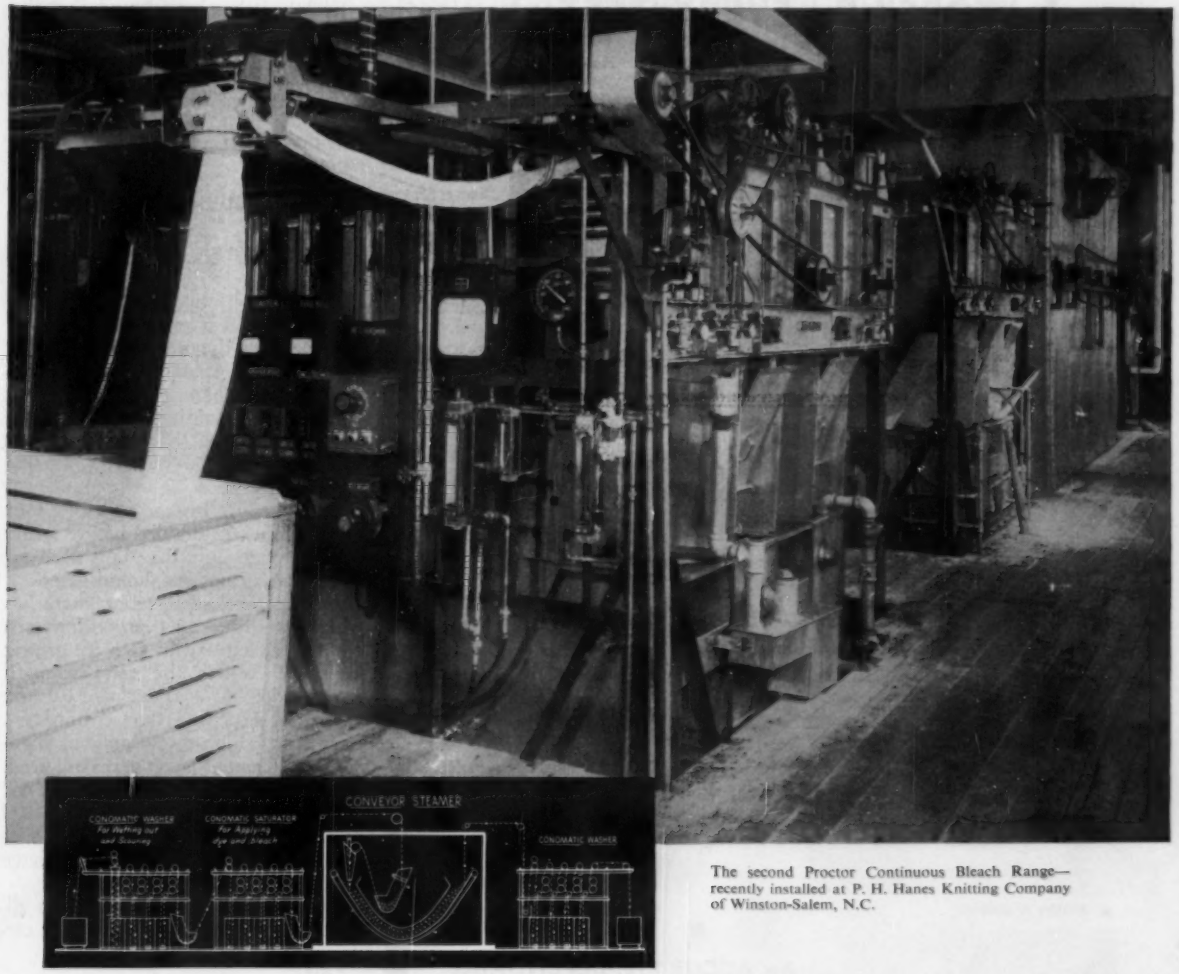
The average shuttle life of the dogwood shuttles formerly used was 1,800 hrs. The molded-plastic shuttles have not been in use long enough to get a complete picture, but they have already given more than three times the service life of the dogwood shuttles. The molded shuttles in use show little wear, although some of them have been in the looms for almost a year, or more than 5,000 hrs. of active service.

The molded-plastic shuttles cost almost twice as much as the regular dogwood shuttles. But this mill thinks the extra cost is justified in several ways.

First, the service life of four or five times that of the dogwood shuttle will more than repay the extra purchase price.

Second, loom efficiency is increased

ANOTHER PROCTOR CONTINUOUS BLEACH RANGE AT WORK FOR P. H. HANES



The second Proctor Continuous Bleach Range—recently installed at P. H. Hanes Knitting Company of Winston-Salem, N.C.

This Proctor Continuous Bleach Range was put into operation at the P. H. Hanes Knitting Company of Winston-Salem, N.C., early this year. The Hanes management was so impressed by the outstanding performance of their first Proctor Range that they turned immediately to Proctor when additional capacity was needed.

Like so many other textile manufacturers, Hanes relies on the name Proctor, for it means dependability, economy and complete processing satisfaction. They know that Proctor equipment means more opportunity for profit.

- Re-runs eliminated
- Operating speeds up to 150 yards per minute
- Cost savings up to $11.00 per 1000 pounds bleached
- Amortized in 1½ years
- Eliminates sorting of batches for cutting room
- Insures cloth of excellent hand, whiteness, uniformity, shrinkage and absorbency
- Tremendous savings in water consumption
- Saves space—easily arranged to suit your plant.

Stop in and visit us at Booth #557 at the Knitting Arts Show at Atlantic City, N.J., April 29 to May 3.

Proctor **PROCTOR & SCHWARTZ, INC.**
Philadelphia 20, Pa.

Manufacturers of Textile Machinery and Industrial Drying Equipment

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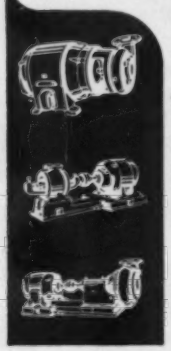

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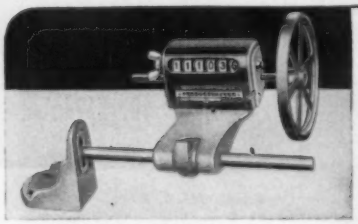
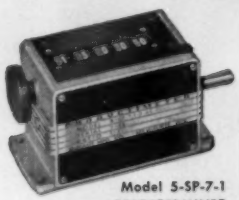
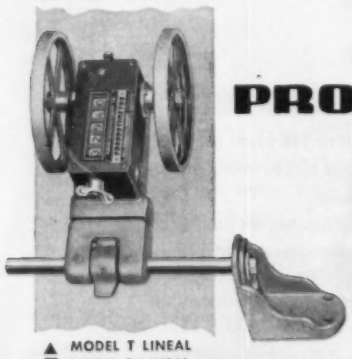


▲ MODEL H LINEAL



Model 5-SP-7-1
PREDETERMINED



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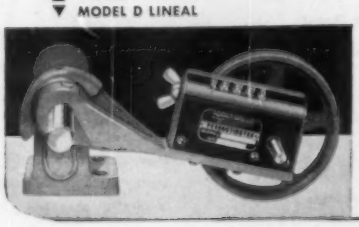
▲ MODEL T LINEAL
▼ MODEL D LINEAL



Model 5-H-7-1-R
END DRIVE ROTARY

due to less downtime for shuttle repair and installation.

Third, labor costs will be reduced, or at least the loomfixer will have more time to spend at other tasks because the shuttles will require less of his time and effort.

Fourth, it has been found that the molded shuttles can be picked with less power. Strain and wear to the loom are decreased, and this is an aid to more efficient operation.

WOVEN INDUSTRIAL HOSE

CONTINUED FROM PAGE 123

around rubber tubes. One type is braided around a rubber tube over a steel mandrel; the other is braided over a plain rubber tube. Both are braided in a horizontal braiding operation.

In another braiding operation, yarn is braided around a rubber tube by vertical braiding.

Braided hose is done in one, two, or three braids. In rare instances, four braids are used. Braided hose is made in ⅛- through 3-in. dia. It is used for air, water, steam, and liquid gases.

During the last 10 years, there has been a steady trend from cotton yarn to high-tenacity rayon yarn for greater strength. Where the extra strength isn't needed, rayon is not used because it is more expensive than cotton.

In knitted hose, cotton and high-tenacity filament-rayon yarns are used. Cotton yarn runs from 12/2 to 12/12. High-tenacity rayon varies from 1,100 to 2,200 den. The yarn may be as small as 1,100-den. singles or as large as 2,200-den. three ply.

Knitted hose is ½ to 1 in. in diameter. End uses are garden hose, car-heater hose, etc.

ABRASIVE FABRICS

CONTINUED FROM PAGE 127

The coated-abrasive sheet is then rolled into large jumbo rolls for further processing into the final-product shape. It is stored in this jumbo roll to be used to produce belts, sheets, disks, etc. to customer specifications.

Thousands of Products Are Made

Thousands of finished products are made from the jumbo rolls. Ream goods are slit to size; belts are slit and spliced; and disks and other shapes are cut with dies.

In making belts, a roll of material of the proper width is cut into lengths

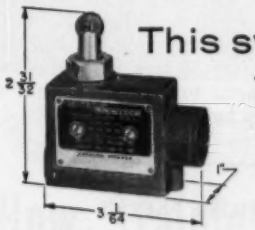
MICRO SWITCH . . . FIRST IN PRECISION SWITCHING

"ML" switch as door interlock on cloth dyeing machine

This MICRO SWITCH 51ML1 switch turns on the exhaust fan when the door of a cloth dyeing machine is opened. Being sealed it is unaffected by regular washing down with a high-pressure hose.

This switch has a sealed actuator. An O-ring seal on the actuator shaft and a synthetic rubber gasket on the back of the head plate prevent moisture, dust or abrasives from entering the actuating mechanism. To insure adequate sealing and prevent loss, cover screws are held captive in the cover when it is removed.

The roller arm actuator is field adjustable through 360°, positively locking at intervals of 4°.



This switch "senses" the presence of a cloth seam

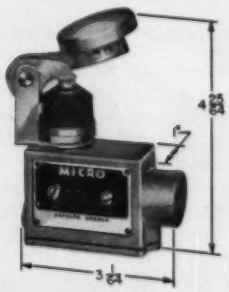
A textile mill uses a large number of these roller-plunger actuated switches to "sense" the presence of a seam in cloth. The roller-actuated switch rides over the cloth which travels along a smooth table. The switch is actuated by a seam or any other cloth imperfection. The switch was selected because of its high sensitivity and long life.

These roller-plunger switches are designed to give sensitive response to actuation whose approach is parallel to the switch. A ruggedly constructed overtravel mechanism assures accurate repeatability of the enclosed switching unit, even when the actuator is subjected to continual impact from the means of operation.

How to cut textile production costs by making machines more automatic with MICRO SWITCH Precision Switches

Installation of MICRO SWITCH Precision Switches on present plant equipment has increased production in textile mills everywhere.

MICRO SWITCH Engineering Service, with long experience in the problems of the textile industry, will cooperate with you in a way to save you time and money. Call your nearby MICRO SWITCH branch office. Distributors with full stocks of switches are located in key cities everywhere. Look under "Switches, Electric" in the Yellow Pages.



Button-actuated switches control cloth movement

A mill operator has installed over one hundred of these button-actuated switches for manual operation on inspection racks to control the movement of cloth. A large roll of cloth is mounted behind the inspection rack, is pulled over the rack and then rewound. The motor driving the two rolls is operated by the switch located before the operator. The operator is thus able to move the cloth forward, stop it or reverse it. MICRO SWITCH Precision Switches were chosen because of their small size, ease of mounting, long, trouble-free life and ease of operation. The large actuator button on this switch is 1½ inches in diameter.

Send for Catalog 101 on "Switches for Industry"

MICRO SWITCH
A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS

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2231 E. Ontario Street
Philadelphia 34, Pa.

as desired with angle-cut ends. The abrasive coating is skived or ground from one or both ends in a desired width. The ends of the belt are inspected with micrometers to be sure the belt has been skived properly. Then adhesives are applied, the ends overlapped, and the joint pressed.

For some end purposes, flexibility is increased by flexing the belt to break the bond. A belt is usually flexed at right angles to the direction the belt will run so that it will hug the pulley it runs on. Other belts are flexed diagonally.

Final inspection of the belt includes checking dimensions, the adhesion of splices, and straightness of the belt. Sample lots are also tested for performance and quality by subjecting them to severe metal-grinding operations. This test is an aggressive grinding operation where 1 in. of metal is removed from a 1-in.-dia. steel bar every 20 secs. without allowing the metal to become too hot to be held by hand.

NEWER FILTER FABRICS

CONTINUED FROM PAGE 130

blanket is an extra-strong, lightweight reinforcing material well suited for molding with thermosetting resins.

The greatest filtration applications are for gases and liquids used in chemical manufacture, food processing, and air cleaning. The most intensive application is in dust-collection equipment. The felt retains particles as small as ½ to 3 microns annd resists abrasion both by filtered particles and the operation of the equipment.

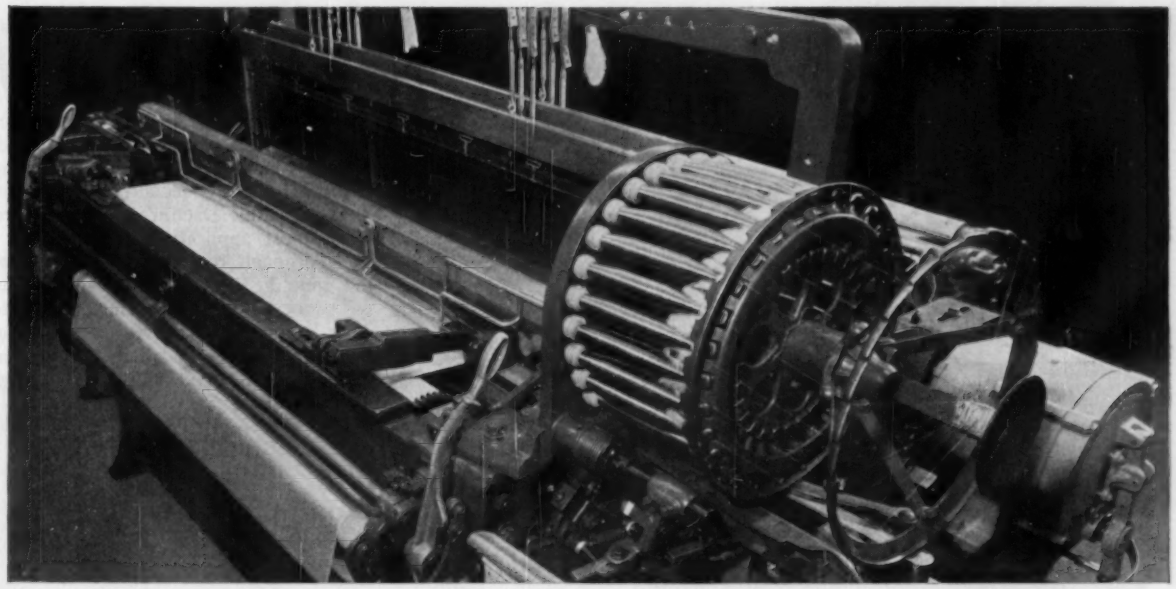
The fabric can be laundered to remove accumulated particles to prolong the useful life. The structure permits a draft ratio of 20 to 1 while it maintains a collection efficiency of 99%.

Other Uses Are Promoted

A variety of mechanical uses for the felts are expected to develop for oil-wicking, sealing, lubricating, cushioning, and polishing materials. Other mechanical uses are being tested to make use of the fabric's qualities of deep drawing, ease of tailoring, and good handling and machining.

The felt is an excellent overlay where a smooth abrasion-resistant and chemical-resistant surface is needed for laminating. The fine, uniform Dacron and Orlon fibers are completely masked by the resins and present a smooth surface; the fibers are white and blend with resins of any color.

Characteristics claimed for this fab-



How Stainless Steel Reeds and Heddles help get "FIRSTS" from looms

Reeds and heddles made of Armco Stainless Steel wire give cost-saving 5-way protection to your loom output. Here's how:

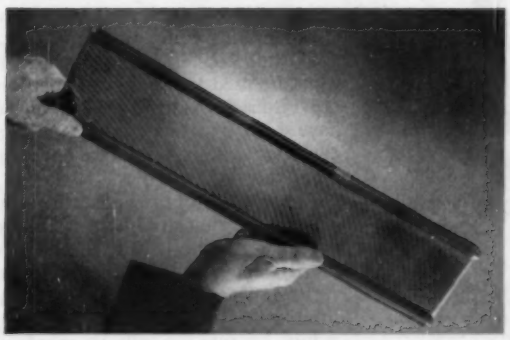
1. They banish rust contamination.
2. Their smooth finish helps prevent dust collection during loom operation.
3. Scum can't get a foothold.
4. Cleaning is quick and easy.
5. Rejects and seconds go way down.

Solid Stainless Metal

Stainless reeds and heddles give longer service because they're solid, rust-resistant metal clear through. There is no plating, so rust-resistance can't wear away.

Armco Stainless Steel in sheet, strip and plate form, is also widely used by fabricators of top-quality textile wet-processing equipment.

Fabricators who use Armco Stainless Steel will be glad to give you first-hand information. Just fill in and mail the coupon. We'll put you in touch with them.



ARMCO STEEL CORPORATION
1147 Curtis Street, Middletown, Ohio

Where can we buy this equipment made of Armco Stainless Steel?

- ☐ heddles
- ☐ reeds
- ☐ other

Name _____ Title _____

Firm _____

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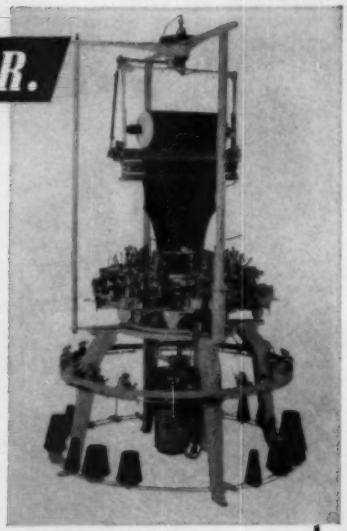
MAKES THE MOST PERFECT CLOTH POSSIBLE



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Model S-1 Junior making fleece with 400-lbs. of Carter 26's and 8's —five feeds, 18" cylinder, running time 68-turns per minute . . .

- NO IMPERFECTIONS
- NO BROKEN NEEDLES

You can produce any class of cloth in the wide range of circular spring needle knitting—in greater quantity, with less waste and less needle breakage—on the New S-1 Junior! It gives you the proven Tompkins system in fully modern form . . . with triple stop motions, furnishing wheels, new gearless drive, automatic oiler and air cleaner! Get the full story now . . . be among the first to profit!

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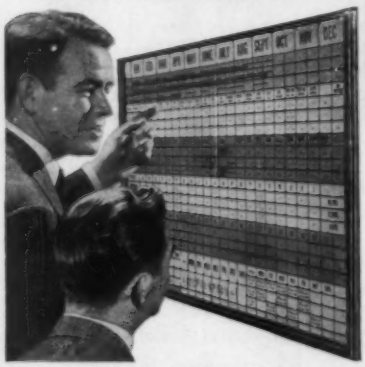
How To Get Things Done Better And Faster



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RIBBON TYPE FILTERING UNIT removes solids .00039 and larger. Transparent plastic bowl makes filtered foreign matter visible. Gives maximum protection to all types of Lint blowers, Blow-off Hoses and various air-operated controls.

M-B PRODUCTS

46 VICTOR AVE., Div. 16 DETROIT 3, MICHIGAN

ric are resistance to temperatures as high as 350° F. and dimensional stability in the presence of moisture at temperatures up to 400° F.

Although almost any synthetic or natural fiber can be needle-punched, Troy's manufacture of the reinforcing fabric has been concentrated on Orlon and Dacron. Dacron is recommended for most applications.

Although the strength qualities of Orlon are not as great as those of Dacron, Orlon is recommended for use in laminates exposed to extreme weather conditions or where the finished laminate is to be painted.

KNITTED INDUSTRIAL FABRICS

CONTINUED FROM PAGE 131

with 21 yds. per lb. Machines for this purpose have up to 52 feeds on a 19-in.-dia. cylinder, and the production is about 300 yds. per hr.

The production of circular jersey to be plastic-coated is rapidly expanding. These fabrics resemble leatherette, and they are used for upholstery and folding doors. They are made on machines similar to those used for meat bags, but the yarn is of higher quality because holes and faults are detrimental to the plastic-covering operation.

Machines for plastic-coated jersey are 18 to 19 cut with 26-, 30-, and 32-in.-dia. cylinders. Yarn is 18s to 36/2s cotton. Production from a 96-feed machine is 100 yds. per hr.

Fast Machine Is Being Developed

A 240-feed circular jersey machine, which could produce a fantastic yardage of cotton cloth per hour, is being developed. Another recent development is the knitting of asbestos on eight-cut jersey machines for such uses as fire-fighting equipment.

Plastic, copper, and other metal yarns are used to knit pot cleaners and other household items. Machines used have 4- to 6-in.-dia. cylinders and are equipped with special take-up equipment and heavy needles.

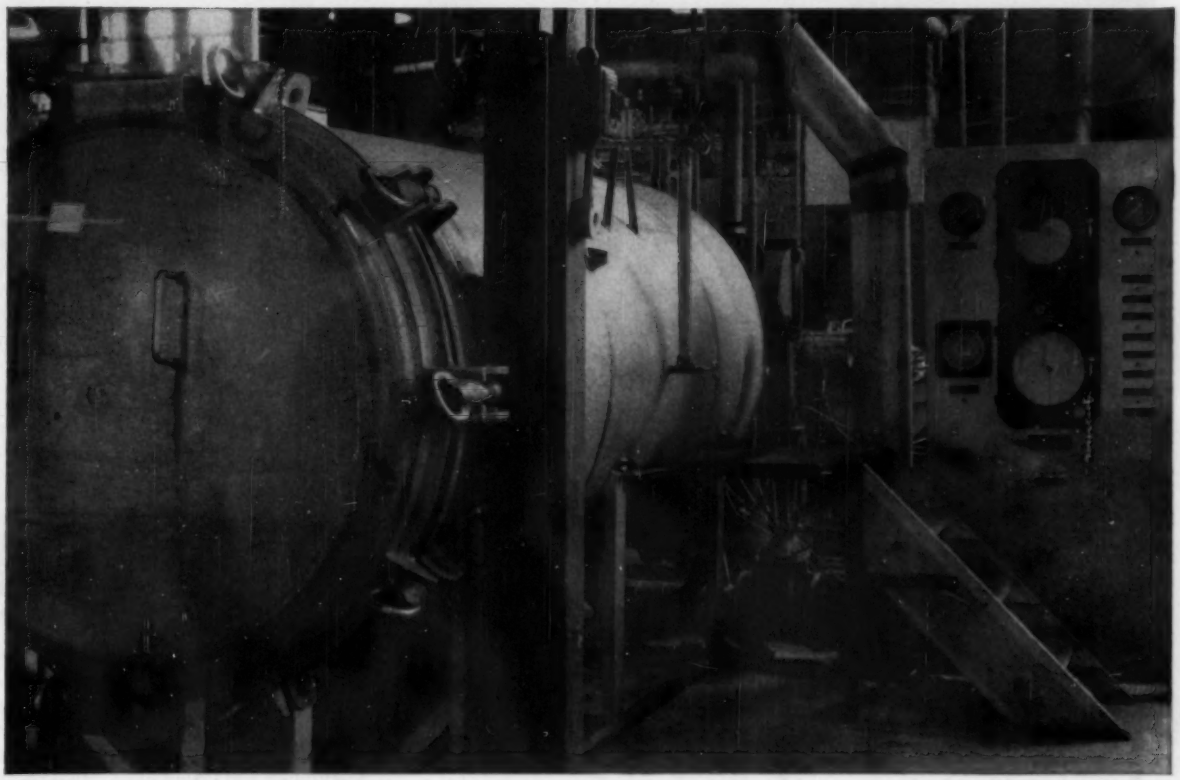
Dye-spring tubes, cuffs for utility jackets, and industrial hose are knitted on small-diameter rib machines. This fabric, made in 1x1 rib from cotton yarn, is very elastic. The feeds are limited to four, but the production is high because the cylinder speeds run up to 150 rpm. on 4-in.-dia machines. One operator attends 30 machines.

Latest newcomer to the industrial-fabric field is one that holds great promise. High-pile fabrics, which are so prominent in imitation furs this

CONTINUED ON PAGE 250

NOW FULLY AUTOMATIC DYEING...

with this new Taylor controlled Burlington Hy-Press Dye Machine



THE Palatine Dyeing Company, at St. Johnsville, N. Y., believes in using the most modern equipment—and in the virtues of automation. In fact, all of their dyeing equipment is Taylor controlled. Pictured above is one of Burlington Engineering Company's latest machines, equipped with a Taylor FULFLEX* Time Schedule Controller. This instrument automatically regulates rate of rise, hold time and temperature, according to a pre-determined schedule. Pressure gages on either side of the controller indicate inside-out and outside-in pressures.

This Taylor control system—

- **Assures a uniformly dyed product**
- **Cuts operating costs**
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Whether you use beam, piece, skein, package or top dyeing, there's a Taylor control system specifically designed for your needs. Just call your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

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Inspection Solves Many Roof Problems

If you have a good built-up roof installed on your mill, you may be inclined to think that it will remain a good roof for an indefinite period. Only violent winds, heavy rains, or other unusual happenings may prompt a roof inspection.

But it is not the unusual happening that does the most typical damage to a built-up roof; sunshine causes most roof deterioration.

What Sunlight Does to Roofs

The tar or asphalt that saturates roofing felt contains volatile ingredients that gradually distill away under sunlight. Summer heat on an exposed roof is higher than most casual estimates would place it. Recorded outdoor temperatures are usually registered in the shade. Direct radiant heat from the sun is considerably higher when rays are unobstructed.

Dark surfaces absorb sunlight; a black roof mat is actually 25° F. hotter on a hot day than a roof covering that reflects sunlight.

When a roof mat is not properly preserved, roofing felts gradually lose their volatile oils and are reduced to the original soft absorptive paper and the harder residues of tar and asphalt that do not yield to the sun's heat.

Roof Treating Is Necessary

Without these life-giving oils, the mat loses its pliability and toughness and much of its moisture resistance.

A dried roof felt is brittle. It tears much more easily than when saturated and loses much of its elasticity so that when cold shrinks it, it often cracks. Increasingly, it absorbs water during rainy spells and is more vulnerable to breaks from wind action, foot marring, or flying debris.

Therefore a roof should be treated periodically to maintain the felt in sound condition.

What Water Does to Roofs

Generally, it is only after sunlight has weakened a roof mat that the worst effects of water infiltration take place. Whether moisture is absorbed through a dried-out felt or seeps through a break caused by contraction, wind, or human interference, the full damage does not occur until ice forms in the winter.

The troubles of composition roofs are similar to those of built-up roofs with added factors that result from the nails used. Wind stresses and contraction strains produce tearing.

Rusting of nails and washers is an important factor because every nail hole is a potential leak in the roof deck. But these tendencies are offset somewhat by the heavier material of the composition roof.

Not All Troubles Are in the Roof

Many troubles that are attributed to a roof may originate in one of several places not exactly parts of the roof. The first parts that should be examined are the parapet and coping. Then examine superstructures and the flashings that protect all angles between horizontal and vertical surfaces.

The purpose of a coping is to keep water out of the parapet wall. This purpose is defeated if (1) the coping material itself absorbs water or (2) the joint is defective or cracking takes place.

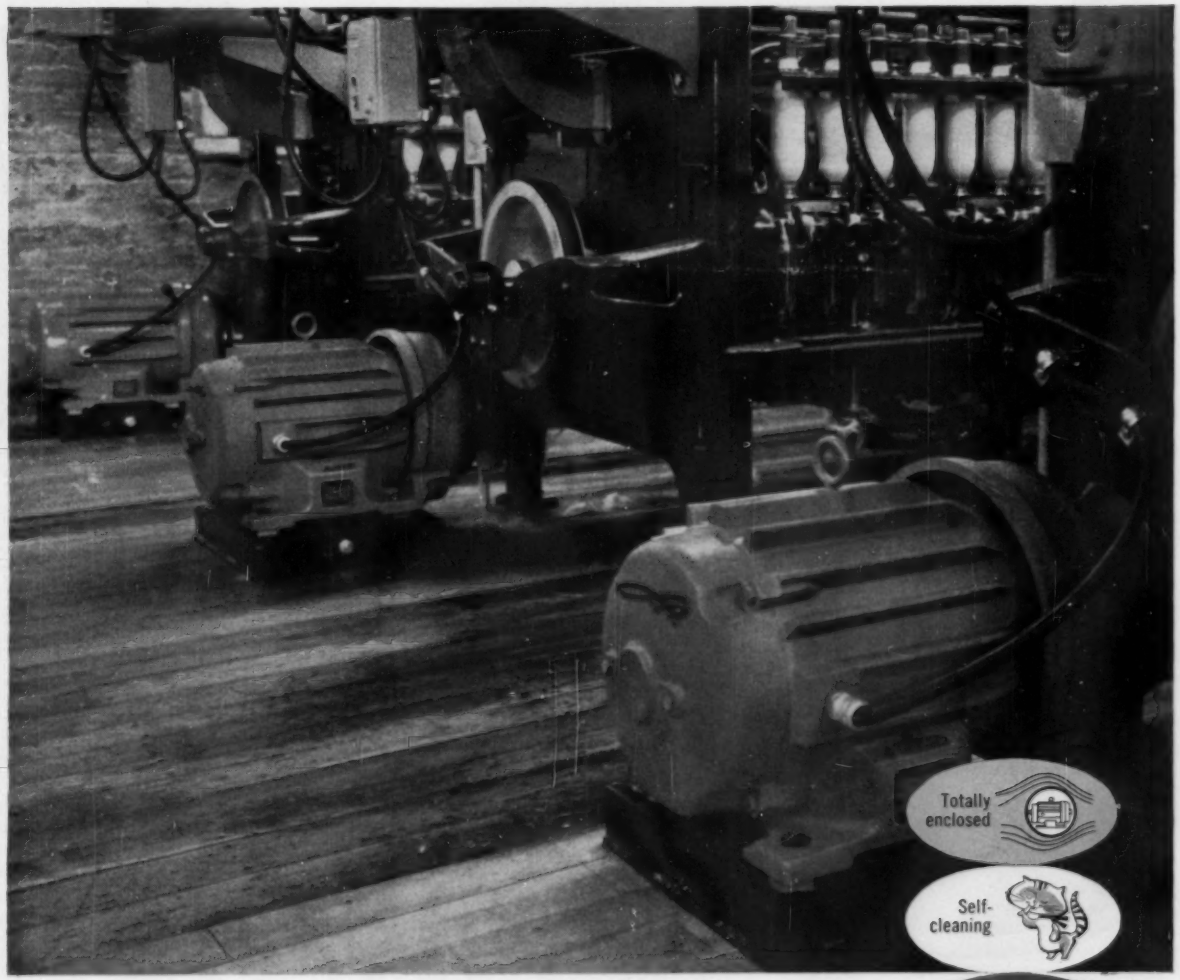
Coping troubles are very common; the evidence often appears in the condition of the parapet face when viewed from the outside. In other instances, the back-up masonry is pushed out by frost action within the saturated wall.

Copings are in an exceedingly exposed condition; between summer heat and winter cold, much expansion and contraction takes place. Yet it is customary to join coping units with hard-setting mortar; and cracking may be expected sooner or later.

Frost Causes a Lot of Damage

Water entering through the coping may emerge at any point in the wall where there is a leaky or porous condition for its exits. Since face masonry is usually joined with more care than back-up masonry, the leak is likely to occur on the interior. Frost is the greatest accelerator of all moisture troubles.

Disintegration of a parapet origi-



"Seconds" reduced with self-cleaning motor

New Louis Allis textile motor runs cooler, reduces lint pile-up, won't dry out ends

The new Louis Allis "Clean-Flo" textile motor is specifically designed to meet your mill requirements. "Clean-Flo" is totally enclosed — lint absolutely can't contact the inside of the motor.

"Clean-Flo" is cooler running than other motors, too. It's designed to mount a fan several sizes larger than normal to blow considerably more air across the motor. That means fewer cooling ribs are needed, so there are none on the bottom of the motor, and a further chance of lint pile-up is eliminated.

The big fan on the shaft extension end holds down any heat build-up, and limits the transfer of heat to the spinning frame. The motors pictured above are mounted to blow lint away from the driven machine so that spindles will not dry out.

The "Clean-Flo" is also available with "soft-start" characteristics needed in roving so that ends won't break. It's a built in feature — no extra control mechanism is needed to get the easy start.

Write for Bulletin 1850, "Clean-Flo Textile Motors" to your Louis Allis District Office, or The Louis Allis Co., 443 E. Stewart St., Milwaukee 1, Wisconsin.

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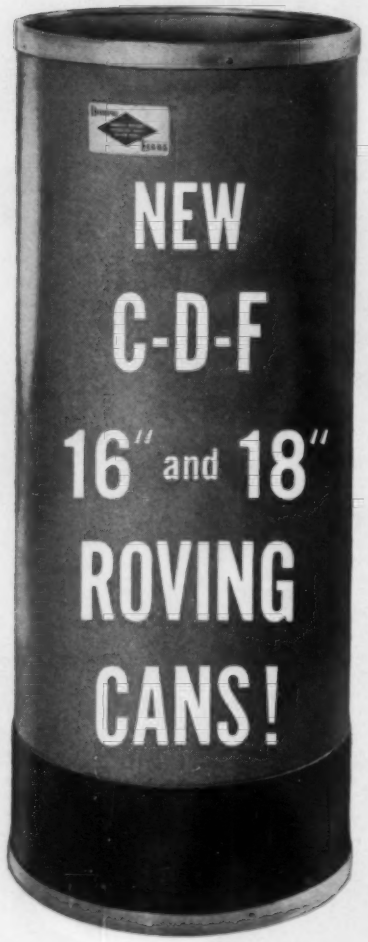

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Now you can get Diamond Fibre Roving Cans in the big 16" and 18" diameters from regular stock at the Spartanburg plant-warehouse.

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CDF Diamond Fibre Roving Cans are smooth, strong, long-lived. Their interior surface, like porcelain, resists cracking and softening—won't snag yarns.

Make the CDF Spartanburg warehouse (834 Hayne Street, Spartanburg, S.C.—Tel. 3-6397) your headquarters for fibre and Celoron loom parts, gears, trucks, and mill boxes. Call Spartanburg or write for CDF Receptacles Catalog.

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nates most often in a defective coping, but not always. The stormy gusts that sweep along a roof and strike the parapet damage the back-up masonry, and direct storm leakage is not unusual.

Leaks Originate at Several Places

Where drains are clogged, water may stand above the height of the flashing for several days and permeate any cracked or porous joint. To a less degree, leaks may develop at any masonry superstructure that extends through the roof.

Some roof difficulties come early in its period of service, particularly if the deck is new. Expansion strains occur often in new concrete or wood construction that involves the roof mat and cause breaks. Therefore a period of breaking in is as recognized a probability in a roof as in a pair of shoes.

Keep People off the Roof

Stagnant water on a roof will rot an asphalt mat. For this reason, hollows in a roof should be avoided. Certain industrial fumes shorten the life of roof felts, as do dust particles. Heavy accumulation of dirt often clogs gutters and results in damage similar to that of a sagging roof.

While occasional walking on good roofs does no harm, a regular practice of walking from point to point in the same path brings early deterioration. Roof inspection often reveals wear around the edge near a parapet. Visits of maintenance men often damage a roof. *Tremco Mfg. Co.*

POINTERS FOR SUPERVISORS

CONTINUED FROM PAGE 165

human beings can meet anger without feeling either fear or anger in return. Both emotions have a notorious effect of coloring what we say. For instance, in anger you, like the rest, are quite liable to overstate your case and make charges that far outweigh the facts of the case.

We are reminded of a conversation we overheard between a very smart mill superintendent and one of his overseers in an Augusta mill:

"Crimanenty, Mr. K.," the overseer said, "every other shuttle on my looms is chipped. I don't know what those fixers are doing, but they're not taking care of my looms."

"Every other shuttle, Robert?"

"Well, I've found two in the last week."

"And how many looms do you have?"

"Well, I admit that with all my looms, two isn't an awful lot; but I'd like not to have any bad shuttles."

"Ah, now, there's a point where I can agree with you. Let's look into it."

3. **Discourage yes-manism.** No one is ever a yes man unless his superior shows him it's the best policy. As a matter of fact, most people would much rather speak their minds than to yes a superior. But if that's what get's a good reaction from the boss, and you want to get along, why . . .

4. **Don't go head-hunting;** but if you do, don't expect employees to join you when their colleague or friend is the quarry. They realize that theirs may be the head you hunt next week, and they want protection from their fellow workers; so it is only natural that they exert themselves to avoid putting the finger on someone else.

5. **Be slow to judge** or at least to announce your judgment. Human beings feel an obligation to avoid known punishment. If you say beforehand that you're going to fire or hang the culprit, you oblige the culprit to seek escape through whatever subterfuge he can concoct. He certainly is not going to step forth and say, "Here I am. Hang me."

6. **Give up the philosophy that you must always make the punishment fit the crime.** Often punishment is not in order at all; and what is actually called for is greater effort on your part, more training, better inspection, a simple reminder to your people that certain things are important and can't be overlooked.

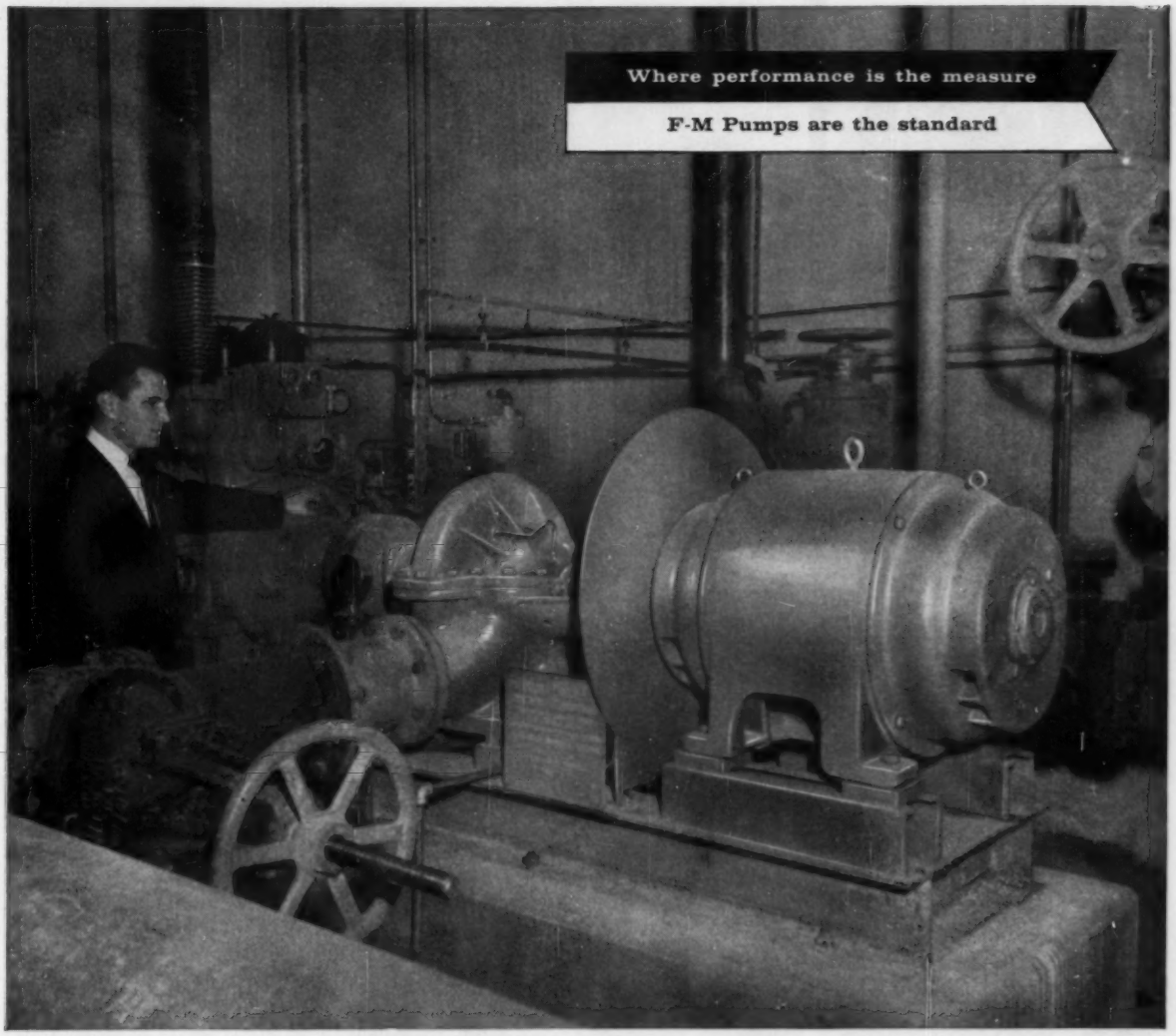
This fact leads, of course, to the fact that:

Sometimes Truth Is Secondary

Your objective, in frequent instances, may be much more vital than "finding out who did it." You will recognize this factor in these cases:

Harvey Crane had a feud between two faction in his weaving department. At first he wanted to find out who started the feud. Thinking it through, however, he realized that what he really wanted (except for his personal curiosity) was not to learn who started it but to stop it—to eliminate the bad feeling and the effects of that bad feeling on the production in his department.

So he short-cut, forgot about the detective work, and just told his people



Fairbanks-Morse 6″ dual-driven fire pump in jet engine testing laboratory

Standby against 3500 degrees!

Full power testing of Navy jet engines creates exhaust heat up to 3500° F. a few feet from highly inflammable fuel—a constant fire hazard when in the confines of the testing laboratory.

To insure positive protection against fire losses, Thompson Products Gas Turbine Laboratory, Perry, Ohio, has installed a sprinkling system with a Fairbanks-Morse 6″ dual-driven fire pump—capable of pumping 1500 gallons per minute. The installation is so dependable, so positive that prompt approval was given by the authorities having jurisdiction.

Don't gamble with the heart of your fire-prevention equipment; insist on F-M pumps with F-M power. See your F-M Field Engineer for expert assistance, or write Fairbanks, Morse & Co., Department TW-4, 600 South Michigan Avenue, Chicago 5, Illinois.

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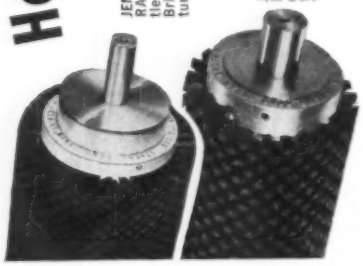

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to lay off and get back to work. Oddly enough, that seemed to be what they wanted: a strong hand to step in and force them to calm down. Soon all was friendly again.

Charles Crittenden had a minor but unnecessary accident in his knitting department. He undertook to track down the cause and the person responsible for it. Then he stopped and asked himself whether the time he was taking was wise. What did it matter, as long as he knew the cure and could pass it along to his people? His real objective was to prevent recurrence of the accident.

Jim Cleckley was an extreme case. He was going to "find the criminal" if, as he said, it was the last thing he did. And it was the last thing he did at his mill in New England. He raised such a row that the union stepped in and eventually was able to get Cleckley demoted to a nonsupervisory job, which he quit.

Jim's successor didn't worry about placing the blame. Instead, he made sure everyone understood the mistake and the means for correcting it.

The summary of this story is this: give yourself a chance and you can get the truth. What stands between you and the information you need to do your job is, more often than not, a fellow your size, with the same job and the same name as your own.

KNITTED INDUSTRIAL FABRICS

CONTINUED FROM PAGE 131

year, are also used for paint-brush rollers and are soon to be used in automobile floor coverings. New high-speed machines, new synthetics yarns, and new finishing equipment may open a host of new markets for these fabrics.

Raschel Products Are Varied

Raschel machines are not so highly productive as circular machines, but they are more versatile. These machines are widely used for industrial fabrics such as laundry nets, camouflage netting, mosquito nets, fish nets, dishcloths, ironing pads, and pressing cloths.

Most nets are made from rayon or nylon yarn, while dishcloths and press cloths are made from cotton. Machine speeds on two-bar nets are up to 600 courses per minute. The knitting width is 100 ins. An 18-gauge machine with nine needles per inch knits yarn ranging from 70 to 1,200 den.

Laundry nets are usually made on three-bar machines. One 24-gauge machine running 260-den. nylon produces as much as 100 lbs. of fabric per shift.

Press cloths are made on raschel machines with two needle bars and two guide bars. A filling tube runs across the needle width at every course to lay a heavy sliver. The machine speed is slow, but the production is high because there are only two to four courses per inch. Yarn is generally run directly from a creel while the sliver is run from a can.

Knitted industrial-fabric production is widespread. Most raschel fabrics are produced in New Jersey, while circular fabrics are made throughout the South, Pennsylvania, and New England. Small mills are prominent in making all types of knitted industrial fabrics, and many mills run industrial fabrics side by side with apparel fabrics.

In some cases, both types of fabric are run on the same machines.

KNITTING ORDER SYSTEM

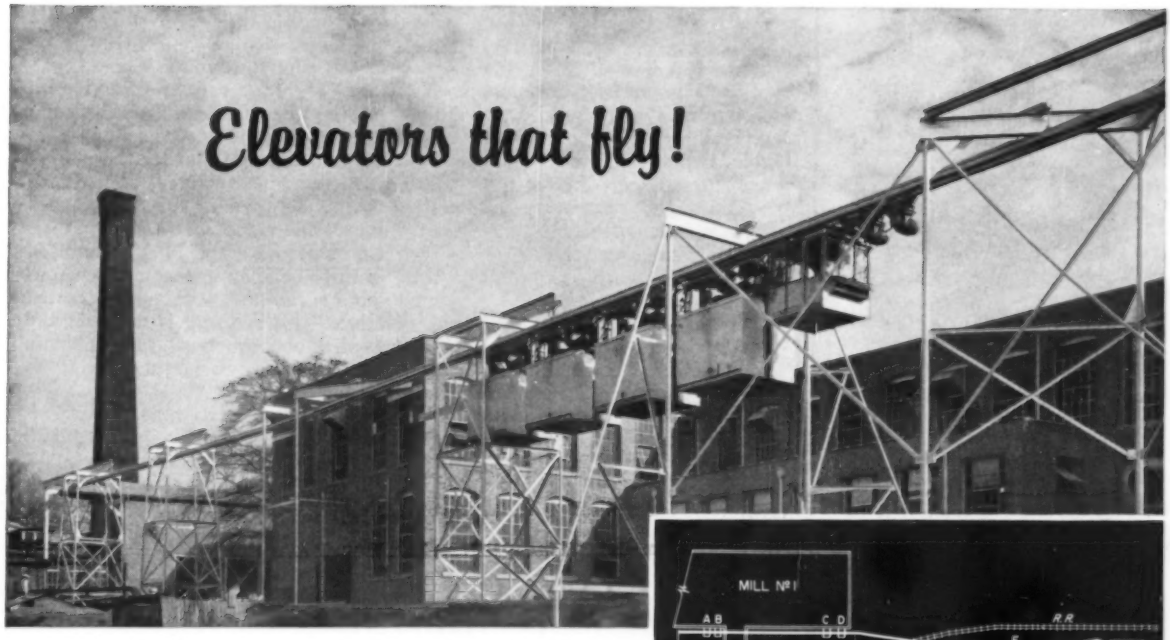
CONTINUED FROM PAGE 145

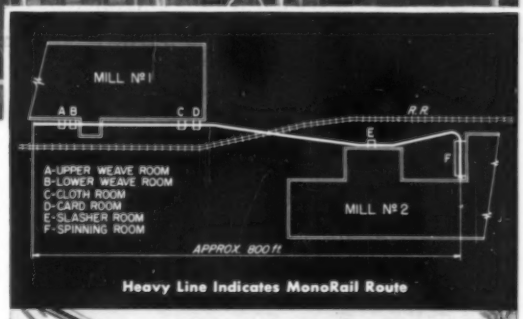
are sorted out in the stock room and are shipped complete unless the customer requests otherwise.

An inventory is taken once each month while the machines are stopped at the week end. A stock list is sent to each customer showing the weight of fabric and yarn in process or in stock.

Knitting machines are set up from the master knitting ticket, which shows the required stitches per inch. When major stitch changes are made, the machine is changed and spotted in the usual manner until the correct number of stitches per inch is obtained. The machine is then finally adjusted with the Speedotex yarn-speed meter.

Yarn sizes run at General Knitting Mills range from 12s to 38s. Rib, jersey, striped, and other fancy fabrics are made; but this system helps keep the mill running smoothly.





Heavy Line Indicates MonoRail Route

AMERICAN MONORAIL

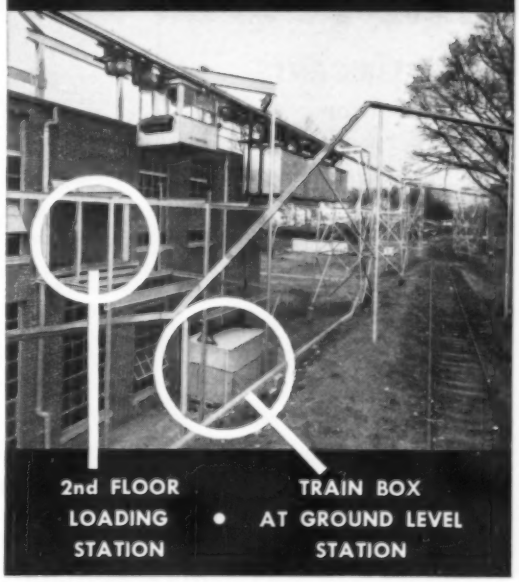
transports cars between 2 mills-

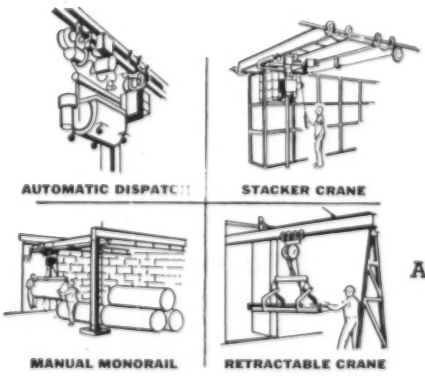
stops at ground and upper level stations.

The equivalent of several elevator loads of material can be transported from building to building and from floor to floor by this modern materials handling system. Erected entirely out of doors, the MonoRail operates overhead, safely above railroad and all other traffic, and takes up no space at all inside the mills.

Loads transported consist of warp beams, boxes of filling quills, roving, trucks of drawing sliver and cloth. Approximately 132,000 lbs. from stations at each mill are transported during an 8-hour shift.

All operations can be controlled from the cab which is equipped with heaters, electric fans, windshield wipers, a gong and spotlights for night operation.





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COATINGS MULTIPLY USES

CONTINUED FROM PAGE 133

than when it is dry.

The high-tenacity rayons approach cotton in strength and weight but generally cost more and lose considerable strength if they get wet in service.

Fortisan 36, a saponified-acetate yarn, is extremely strong and resistant to sunlight, which makes it an excellent base when using translucent coverings.

Nylon excels cotton in strength; and because of this strength and its lower specific gravity, it provides a backing medium that is often tailored to a specific use. Nylon fabrics made specifically for coating include a 12x15, 840-den. fabric and a 24x24, 210-den. fabric, products of Bates Mfg. Co., Lewiston, Me. This concern also makes a 12x12, 800-den. fabric from Fortisan 36.

All these fabrics are of very open construction and permit film-to-film bonding through the interstices during the lamination with vinyls or elastomers.

These fabrics develop high tensile strength at weights about one-fourth those of similarly strong cotton fabrics.

Specialization Pays Off

Another source of fiber consumption, if not of fabric, is the comparatively recent swing toward nonwoven fabrics as vinyl backing. At least one 1957 automotive line is featuring vinyl upholstery inserts that have a backing made by Pellon Corp. Similar applications include home and institutional upholstery.

The flexibility of a properly chosen nonwoven fabric matches that of the vinyl film to produce an end product that tailors well. There is also considerable resilience to the combined vinyl-nonwoven fabric material.

Fabrics for backing are developing in the same direction as are the coatings. There is a definite swing toward picking the most-suitable fiber and making from it a specific fabric to support the right film for the job.

An example of a very high degree of specialization is a product called Fluorglas, made by Dodge Fibers Corp., Hoosic Falls, N. Y. Produced in three basic forms—a yarn, a porous fabric, and a continuously coated fabric—this specialty is far from the normal conception of textiles. The base fiber is glass; the coating is Teflon.

The yarn is used in making insulating braids for electrical equipment and sewing threads for chemical-resistant materials. The open fabric finds use in filters, fire- and chemical-resistant clothing, and bearing material.

The coated fabric is used as insulation, release material for heat-sealing purposes, conveyor belts, armature windings—almost any purpose where high dielectric strength and/or chemical resistance are required.

Cotton Is Still Out Front

But cotton is still preferred in more end-use markets than any other fiber used in backing for coated fabrics.

Coaters have a wider choice of backing materials today than was the case in 1940. Competition for the backing-fabric business has resulted in the development of fabrics better suited to the purpose, in fact actually designed and made for coating.

The swing to specialized fabrics made from the fiber best suited to the purpose will undoubtedly continue because it is a logical step.

There are over 100 fabric-coating concerns in this country; so it is obvious that there is enough competition to keep researchers busy for some time to come.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 178

Sweater Machine

Model LH-6 links-links machine, built by Wildman-Jacquard Co., Norristown, Pa., has been redesigned to make bulky rib-knit sweater fabrics. The machine is built with three-cut, 30-in.-dia. cylinders and it has six feeds.

The cam system has been changed, and the needles can knit three ends of 2/10s yarn. Control cards, now made from Mylar film, resist oil stains and sudden temperature changes. There are three-color yarn changes at each feed.

Imitation cable stitches, half-cardigan stitches, 2x2 rib, jersey, and plain bodies can be made with any desired rib cuff. The machine knits high-bulk Orlon yarns successfully.

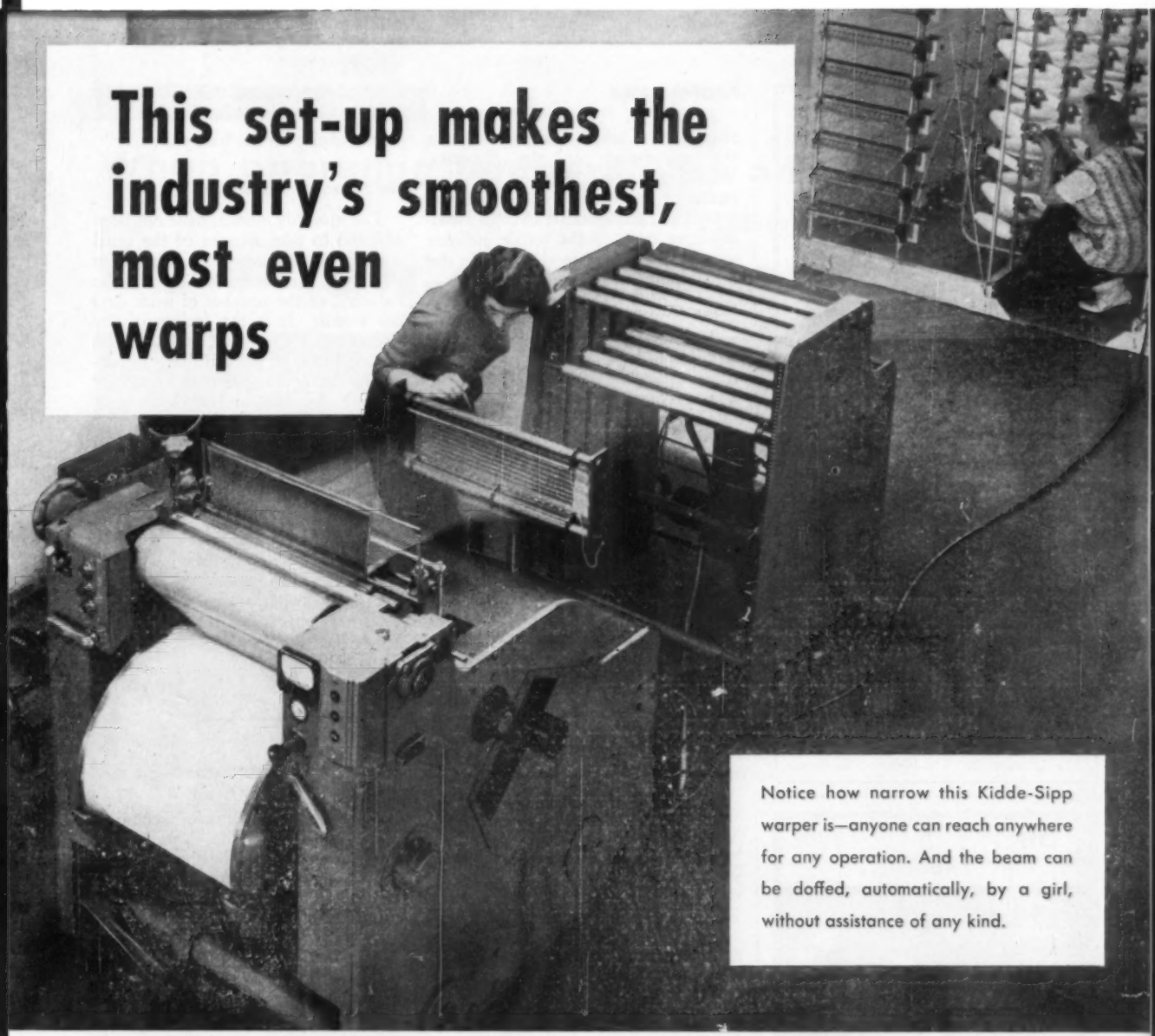
Circle T-23 on Reader-Service Card

Lint Collector

Carding, twisting, and spinning rooms can be kept more free of lint

CONTINUED ON PAGE 254

This set-up makes the industry's smoothest, most even warps



Notice how narrow this Kidde-Sipp warper is—anyone can reach anywhere for any operation. And the beam can be doffed, automatically, by a girl, without assistance of any kind.

it's the KIDDE-SIPP warper with accumulator and creel

The smoothest, most even warp beams available today are being turned out by Kidde-Sipp warpers . . . particularly when backed up by a Kidde-Sipp accumulator and a Kidde-Sipp Creel. Here's why:

Yarn is never scuffed on the warper because brakes on the measuring roll, compression roll, and beam are all synchronized electrically. Furthermore, yarn builds up evenly because the compression roller has 2 hydraulic cylinders, one at either end (instead of just one in the center). The balanced pressure that results gives you perfectly even build-up of yarn. And the hydraulic cylinders produce uniform cushion pressure so that the compression roller will not chatter or bounce.

The accumulator is electrically synchronized with the warper, so that, when the yarn must be backed off to recover a broken end, proper tension is maintained. And even the heaviest packages won't sag out of alignment on the versatile Kidde-Sipp Creel. New, stronger package holders and adapters are the reason. They are made of aluminum, which also puts a stop to rust rubbing off on the yarn.

There are a lot more reasons why you get a better beam with Kidde-Sipp Warpers, Creels and accumulators. Find out more about them by writing to:

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

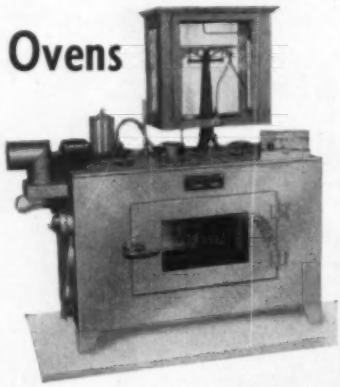
Kidde

MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

Textile Testing Ovens



EMERSON OVENS

For accurate testing of water content in yarn, small wool samples and other textile material. The 8 Basket Oven, shown above, can be furnished with 8 baskets 3" sq. x 6" deep or 6 baskets 4½" sq. x 6" deep, complete with weighing balances, sensitive to 3 mg., weights, and automatic temperature control. Table space 20" x 40".

Details of other style Ovens with specially designed baskets to handle YOUR TESTING PROBLEM on request.

EMERSON APPARATUS CO.

177 Tremont St. Melrose 76, Mass.

DIRT can't anchor...

sails away with Cindet all-purpose liquid detergent

DIRT FILM breaks up on contact with Cindet suds. The particles ride up inside the bubbles — cannot anchor — literally sail away via your suction or mop pick-up. The job is easier—the surface is cleaner. Dilute in lots of water—hard water makes no difference. Use on any kind of flooring — any surface that can stand plain water.

For free sanitary survey of your premises ask your Dolge service man

Dependable DOLGE WESTPORT, CONNECTICUT

tivity in the textile industry used in the calculation of the TEXTILE WORLD Index are based on historical trends of productivity in the industry as well as a survey of some of the leading economists in the textile industry on recent trends of productivity in the textile field.

Index Calculation and Base Period

The index is calculated each month by multiplying the number of production workers actually at work and the number of hours they worked. The result is an aggregate figure on the number of manhours worked. This aggregate is then multiplied by the index of productivity (pro rated on a monthly basis throughout the year.)

All the monthly index figures are then related to the base-period average, the base period being 1954. The year 1954 was selected as the base because that year happens to be the year the last Census of Manufactures was taken. Thus for purposes of comparison with other textile figures, 1954 is a good choice for the base year.

No Seasonal Adjustments

The monthly indexes have not been adjusted to take account of the usual seasonal fluctuations that take place each year, the regular holidays in the industry, or the number of work days per month. It is the feeling of the Economics Department and the Editors of TEXTILE WORLD that the people in the textile industry know, for example, business in July, because of vacation shut-downs, is usually the low point of the year. It is conceivable, however, that by using a statistical technique (adjusting the raw data for seasonal variations) the July figure could turn out to be the high month of the year.

If enough requests come in asking us to adjust the index for seasonal changes, we will do so. Otherwise the index will appear in its present form in each future issue of TEXTILE WORLD.—EDITOR

with a filter marketed by Sims Metal Works, West Point, Ga.

The unit consists of a cage surfaced with galvanized-wire mesh and a ½-hp. motor driving a fan that will move 210,000 cu. ft. per hr. of air. Lint collects on the outside of the cage, from which it is easily removed by hand or by vacuum.

The filter may be mounted vertically or horizontally, and it is recommended that it be placed as close to the source of lint as practical.

Circle T-24 on Reader-Service Card

Improved Spinning Tape

An improved spun-nylon spinning tape that can be easily bonded has been announced by Lambeth Rope Corp., Kings Mountain, N. C. Lambeth's Overdrive weave is used in the construction of the tape, which is heat-treated and has the minimum acceptable thinness.

Sales will be handled exclusively by Carolina Belting Co., 19 Blair St., Greenville, S. C.

Circle T-25 on Reader-Service Card

Lubricating System

A circulating system for providing continuous recirculation of filtered oil to bearing surfaces of machinery has been introduced by Bowser Technical Refrigeration, Terryville, Conn. Called the CS Circulating Lubrication System, it is furnished complete and consists of a liquid pump, tank, filter, heat exchanger, control valve, and required piping.

Circle T-26 on Reader-Service Card

Vacuum Transmitter

An immersed-float vacuum transmitter for use with its automatic proportioning chlorinators has been developed by Fischer & Porter Co., 555 Jacksonville Road, Hatboro, Pa. The transmitter gives a vacuum signal proportional to the main-line water flow and governs the amount of chlorine introduced into the system by the chlorinator.

Circle T-27 on Reader-Service Card

Seal for Wood Floors

A seal for wood floors is a product of Vestal Chemical Laboratories, Inc., 4963 Manchester Ave., St. Louis 10, Mo. The seal penetrates the cells in the wood to form a solid mass that prevents wear. It also prevents the absorption of moisture, grease, oil, and dirt.

Circle T-28 on Reader-Service Card

Textile Notes on Corn Products

When operating temperatures and size stability are critical...use

NEW TEN-O-FILM® STARCHES

Fast cooking, easy desizing make these new corn starches a favorite for synthetics and combed cottons

Ten-O-Film has the stability and ease of removal necessary for spun synthetic yarns and blends, for combed cotton yarns and for worsteds.

Despite prolonged heating and circulating you can count on Ten-O-Film to maintain its viscosity at slashing temperatures. And when temperatures fall, it will resist gelation, even far below normal operating levels. If necessary, these new starches can be used with excellent results when humidity conditions in the weave room are lower than normal.

Ten-O-Film cooks quickly. You can have a completely stable size in 30 minutes after it reaches the boil. This product provides high film strength, flexibility and stability in a complete range of fluidities.

Ask the man from Corn Products. Ready to assist you in any way, he has at his disposal the most complete laboratory and technical facilities in the industry. The man from Corn Products can also provide engineering service for the installation of bulk-handling equipment. Write or phone for information, there is no obligation.

CORN PRODUCTS SALES COMPANY
17 Battery Place, New York 4, N. Y.

Corn Products makes these famous starches for the textile industry—
Eagle • Foxhead • Globe • Hercules • Ten-O-Film • Globe Dextrines & Gums

For more data, write this page number on Reader-Service card. →

CROMPTON RICHMOND COMPANY INCORPORATED FACTORS

The Surplus Factor

When you are Factored by Crompton, your expedient worries are over. You get immediate cash for receivables. There are no contingent obligations on your capital — because we have assumed all the liabilities involved in collecting the receivables . . . both the credit risk and the clerical cost.

But our advantages go much further. Our own capital resources are ample not only for the present demands on us, but even for an accelerated demand above our current large factoring volume.

There is also at your disposal our experience gained over many generations of producing and distributing merchandise to all four corners of this nation.

CROMPTON COMPANY 1807 1952 150TH ANNIVERSARY

The Human Factor

CROMPTON-RICHMOND CO., INC.
1071 Avenue of the Americas, New York 18

Crompton-Richmond-Joel Hurt Co.
Glenn Building, Atlanta 1, Georgia

NEWS ABOUT SUPPLIERS

ALLIED CHEMICAL & DYE CORP., New York, N. Y.—Has elected Glen B. Miller as president. Fred J. Emmerich becomes chairman of the board. . . . **ALVEY CONVEYOR MFG. CO.**, St. Louis, Mo.—Has opened a district office in Charlotte, N. C., under the direction of L. D. Burdette. . . . **AMERICAN VISCOSE CORP.**, Philadelphia, Pa.—Has given Herbert H. Hamburg a new post as special assistant in the Film Div. sales department, New York, N. Y.

ANHEUSER-BUSCH, INC., St. Louis, Mo.—Has appointed Walter P. Hope as Southeastern regional manager for the Bulk Corn Products Div. with headquarters at Columbus, Ga. Two new sales representatives are T. M. Hampton, Jr., in LaGrange, Ga., and J. C. Aycock in Greenville, S. C. . . . **ARNOLD, HOFFMAN & CO., INC.**, Providence, R. I.—Has announced plans to build a plant for the manufacture of Procion dyes at Dighton, Mass.

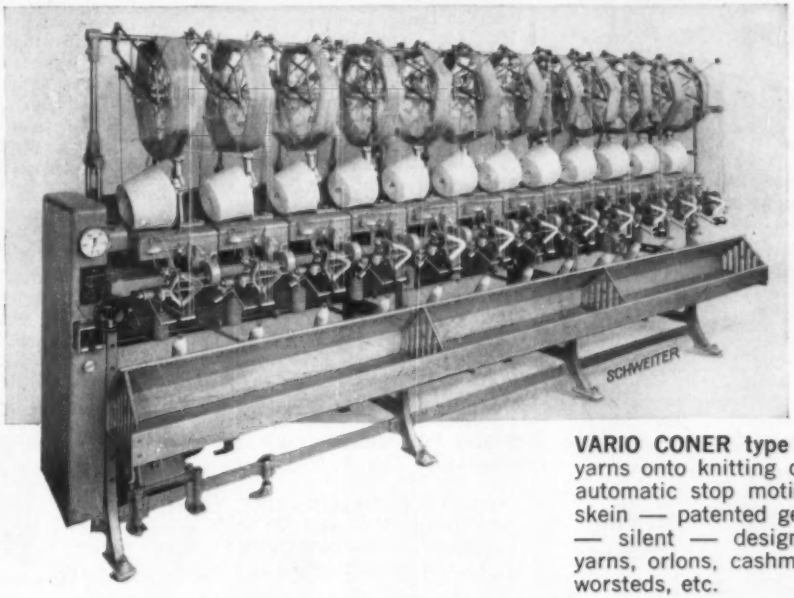
DR. HAROLD K. LATOURETTE (left) has been named manager of organic research and development at Becco Chemical Div., Food Machinery & Chemical Corp., Buffalo, N. Y. HERMAN L. SCHWARZ (center) has been promoted by Sandoz Chemical Works, Inc., to the position of New York district sales manager for textile dyestuffs and chemicals. GEORGE J. WATERFIELD (right) has been appointed assistant treasurer of Curtis & Marble Machine Co., Worcester, Mass.

BECCO CHEMICAL DIV., Food Machinery & Chemical Corp., Buffalo, N. Y.—Announces that Bruce J. Bishop has joined the sales staff in the Southern-territory office, Charlotte, N. C. . . . **CELANESE CORP. OF AMERICA**, New York, N. Y.—Has appointed Henry B. Jammer as manager of production planning, Textile Div., Charlotte, N. C. . . . **CHEMSTRAND CORP.**, Decatur, Ala.—Has appointed George C. Elmes as a senior textile engineer. Dr. Robert W. Work has joined the company as head of the Fiber Development Dept.

COCKER MACHINE & FOUNDRY CO., Gastonia, N. C.—Has announced plans to move to a new building in Ranlo, N. C., as part of a $275,000 expansion program. . . . **COMMERCIAL FACTORS CORP.**, New York, N. Y.—Has announced the appointment of W. A. Gray as administrative assistant to W. J. Koechlein, vice president. . . . **CONTINENTAL CAN CO.**, New York, N. Y.—Has elected John C. Michaud vice president of the newly formed Containerboard and Kraft Paper Div.

DEXTER CHEMICAL CORP., New York, N. Y.—Has completed construction of a modern office building on land adjacent to its present manufacturing facilities. . . . **DIAMOND ALKALI CO.**, Cleveland, O.—Has promoted Jack E. Davis to the post of special staff assistant in the sales department. . . . **DOBECKMUN CO.**, Cleveland, O.—Has granted licenses to four additional firms, including Reynolds Metals Co., Standard Yarn Mills, Continental Can Co., Fairtex Corp.

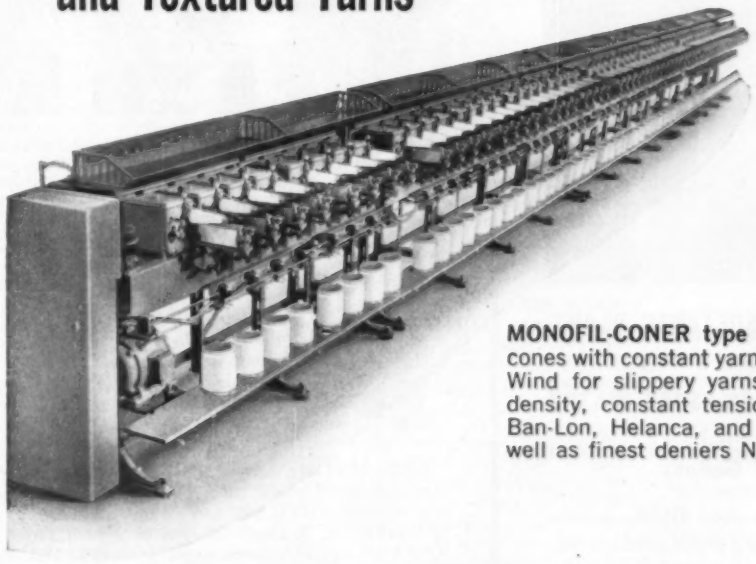
VARIO CONER for Knitting Yarns



VARIO CONE, Cross Wound with Progressive Conicity

VARIO CONER type KM 5/7 for winding spun yarns onto knitting cones of uniform density — automatic stop motion for entanglement in the skein — patented gear driven dry waxing device — silent — designed to wind the "difficult" yarns, orlons, cashmeres, boucles, ratines, wool, worsteds, etc.

MONOFIL-CONER for Mono filament Nylon, Ban-Lon, and Textured Yarns



PINEAPPLE CONE with tapered ends

MONOFIL-CONER type KEK-PM winds pineapple cones with constant yarn speed — special "Penta" Wind for slippery yarns, soft packages, uniform density, constant tension, uniform oiling, winds Ban-Lon, Helanca, and other Textured Yarns as well as finest deniers Nylon, Orlon, etc.

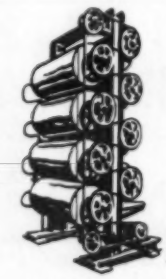
Sole Agent for United States and Canada:

H. J. Theiler Corporation
Whitinsville/Mass. USA

SCHWEITER LTD.
HORGEN (Zurich) SWITZERLAND

For more data, write this page number on Reader-Service card. →

Now, Drying Cylinders are Cleaned Thoroughly, Rejects Reduced



To clean its copper and stainless steel dyed fabrics dryer, one mill was accustomed to use caustic – applied with a cloth on a broom. Only the lowest four "cans" could be washed – the rest proved inaccessible.

Now, by spraying Oakite Composition No. 24 solution with the Oakite Hot-Spray Unit, every "can" is cleaned thoroughly – even the topmost. Traces of dye and bleach are easily, quickly removed – cylinders restored clean as new – solving also the fabrics reject problem.

Ask your nearby Oakite representative for further money-saving details. Write Oakite Products, Inc., 52D Rector Street, New York 6, N. Y.

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MATERIALS · METHODS · SERVICE
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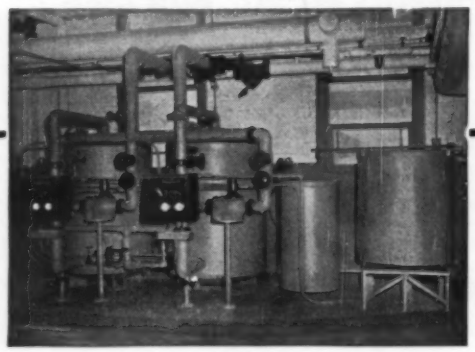
Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada



INVERSAND WATER SOFTENER PLANT

Producing

CLEAR-IRON FREE 100% SOFT WATER

Often For As Little As 1¢ per 1000 Gallons

Troubled with harshness, poor finish, uneven shades, redyes, seconds, and other product difficulties—?? The secret of uniformity may lie in your water supply. May we check it for you?

HUNGERFORD & TERRY, INC.

CLAYTON 9 NEW JERSEY

NEWS ABOUT SUPPLIERS Continued

DOW CHEMICAL CO., Midland, Mich.–Has awarded contracts to Daniel Construction Co. for four buildings at the Lee Hall, Va., textile-fiber plant. . . . **DRAPER CORP.**, Hopedale, Mass.–Has announced the appointment of B. R. Ebersman as vice president of Hemphill Co., a subdivision of Draper Corp. . . . **E. I. DU PONT DE NEMOURS & CO., INC.**, Wilmington, Del.–Has established a technical service group of the export sales section of the Textile Fibers Dept. under the direction of C. R. Humphreys. . . . **EMERY INDUSTRIES, INC.**, Cincinnati, O.–Has appointed Paul N. Leech as sales representative in the Mid-Atlantic territory.

GENERAL STRAPPING CORP., New York, N. Y.–Has named Carl Wood as sales engineer in the states of North Carolina, South Carolina, and Georgia, with headquarters in Hartsville, S. C. . . . **HILTON-DAVIS CHEMICAL CO.**, Cincinnati, O.–Has apointed Roy D. Wiggins to the research and development section of the Textile Div. . . . **HOWARD BROS. MFG. CO.**, Worcester, Mass.–Has appointed Charles A. Haynes as works manager. E. Jack Lawrence has been appointed Southern agent in addition to his duties as Southern manager. . . . **INTEX CHEMICAL CORP.**, Lodi, N. J.–Is a new company formed with Leon P. Brick as president to manufacture a complete line of industrial and textile chemicals and auxiliaries. . . . **INDUSTRIAL RAYON CORP.**, Cleveland, O.–Has placed an order for an additional 1,700 SMM spindles for its Covington, Va., plant. . . . **JOHNS-MANVILLE SALES CORP.**, New York, N. Y.–Has elected Reginald L. Johnson vice-president.

BERNARD F. BERTLAND (left) has been appointed to the newly created post of director of advertising, merchandising, and promotion for Chemstrand Corp., New York, N. Y. JACK HARRISON (center) has been elected vice president and sales manager for the Narrow Fabrics Div. of Fletcher Works, Inc., Philadelphia, Pa. HAL E. HORNBUCKLE (right) has been named service supervisor for Foster Machine Co., working from the Charlotte, N. C., office.

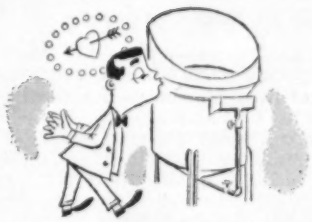
MORETEX CHEMICAL PRODUCTS, INC., Spartanburg, S. C.–Has named Robert Hodges as office manager and comptroller. Oliver Goldstein has been made assistant to the sales manager, and Donald Davis has been named plant superintendent . . . **NOPCO CHEMICAL CO.**, Harrison, N. J.–Has appointed George H. Faux as treasurer.

OLIN MATHIESON CHEMICAL CORP., Baltimore, Md.–Has announced plans for a 25% increase in capacity for the manufacture of HTH high-test calcium hypochlorite. . . . **ORR & SEMBOWER**, Reading, Pa.–Has appointed Paul E. O'Hora as New York district sales manager. . . . **PITTSBURGH CORNING CORP.**, Pittsburgh, Pa.–Has elected Paul D. Japp vice president. . . . **PROCTOR & GAMBLE CO.**, Cincinnati, O.–Has appointed Roger L. Pruitt to its Textile Research Dept.

PROCTOR & SCHWARTZ, INC., Philadelphia, Pa.–Has announced plans to expand manufacturing facilities by establishing an additional plant at Waynesville, N. C. The company has appointed Fred Whiteside Corp., 10 High St., Boston, Mass., as manufacturer's agents. . . . **RELIANCE ELECTRIC & ENGI-**

Using Salt Efficiently

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt



You Can Save Money on Water Softening—With a "Lixator"

Today, a great many companies using zeolite water softeners are faced with this problem: While the water softener (which needs periodic regeneration with brine) gives excellent performance—regeneration is often costly, time-consuming, and causes substantial waste of salt. This is generally the case when salt is dissolved to form brine without the proper controls.

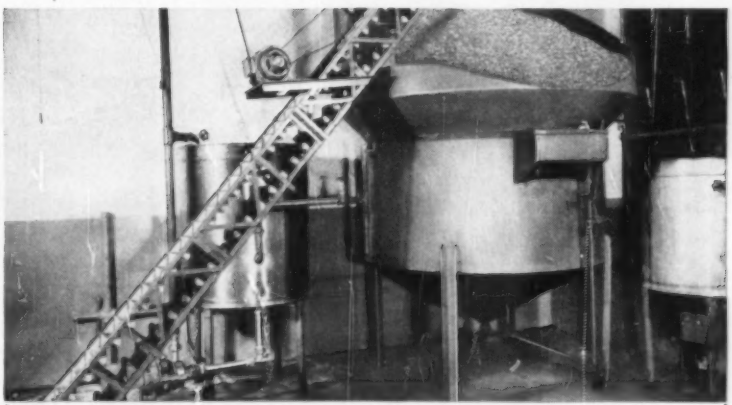
In most plants, however, it *is* possible to reduce this high cost of water-softener regeneration. The method is simple and effective: Always regenerate with pure, fully saturated brine—the type of brine made in a Sterling Lixator. Here are some of the reasons why Lixate Brine can save money for users of zeolite water softeners . . .

The Sterling Model Lixator is the most efficient and economical rock-salt dissolver ever developed. Wherever this fully automatic unit is used in water softening, it reduces the amount of salt consumed . . . eliminates dry-salt spillage . . . and simplifies the entire brine-making process. Developed and patented by the International Salt Co., the Lixator combines rock-salt dissolving and brine filtration in one simple operation. It delivers fully saturated crystal-clear brine *automatically* to any point within a plant. The Lixator is also remarkably easy to maintain, and has no moving parts to get out of order.

In operation, a Lixator need not replace the salt-dissolving tanks furnished by water-softener manufacturers. Instead, Lixate Brine is piped to these tanks—which then serve as the storage and measuring tanks from which brine is withdrawn for use.

Salt handling reduced. Because Lixate Brine is *piped* to points of use, the work of hauling dry salt from storage piles to the location of the water softeners is eliminated. Also, because of this direct-piping feature, the Lixator (and the salt that feeds it) can be placed anywhere in the plant, to make the most efficient use of available space. With a self-feeding hopper for salt, the Lixator operates automatically, without attention, and with little or no salt handling.

Lixators are made in a variety of types and sizes— to meet the brine needs of individual plants. The principle by which they operate can benefit the largest factory, or even a plant of moderate size.



At the Libby, McNeill & Libby plant in Hartford, Wisconsin, this Sterling Model Lixator is used for efficient, low-cost water-softener regeneration. A mechanical conveyor fills the Lixator hopper from a nearby rock-salt storage pile. In *your* plant, a Lixator can also produce substantial savings on salt—and in salt handling as well.

Complete regeneration. Since Lixate Brine is always 100% saturated, it provides complete water-softener regeneration each time. This means that extra regenerations—with the consequent use of more salt—are eliminated. Still another advantage results from using Lixate Brine: Water-softener operators will not use any more of this brine than is needed for each regeneration. What often happens in the case of unsaturated brine is that excess amounts are used in an attempt at complete regeneration. In the long run, this always results in a costly waste of salt.

Keeps water softeners clean. Besides being fully saturated, Lixator Brine—produced in a Lixator from economical grades of Sterling Rock Salt—is also self-filtered, and free from insolubles or other foreign matter. As a result, it will not introduce dirt or other "clogging material" into the zeolite bed of the water softener. This has proved to be a particular advantage in industrial water softening—because the zeolite stays in good condition longer. Lixate Brine is also free from acids or alkalies. Thus, being neutral, it cannot adversely affect the performance of any zeolite water-softening system.

TECHNICAL SERVICE WITH YOUR SALT

Through skilled and experienced "Salt Specialists," International can help you get greater efficiency and economy from the salt you use. International produces both Sterling Evaporated and Sterling Rock Salt in all types and sizes. And we also make automatic dissolvers in metal or plastic for both kinds of salt. So we can recommend the type and size of salt most perfectly suited to your needs.

If you'd like the assistance of an International "Salt Specialist" on any problem concerning salt or brine—or further information on water-softener regeneration—just contact your nearest International sales office.

International Salt Co., Scranton, Pa.

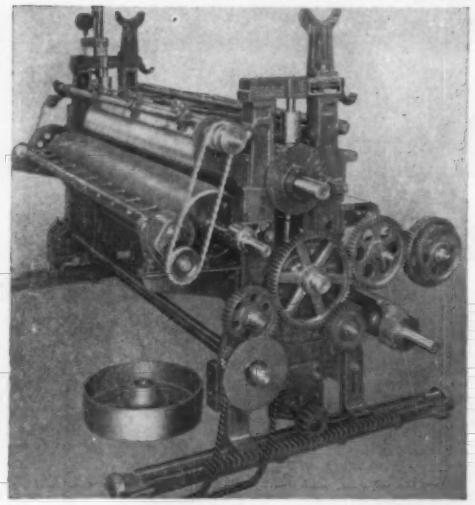
Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa., Pittsburgh, Pa., and Richmond, Va.

FOR INDUSTRY, FARM, AND THE HOME—

STERLING SALT

PRODUCT OF INTERNATIONAL SALT CO., INC.

"CONVERSION UNITS"
WILL INCREASE the EFFICIENCY of your
PERALTA® MACHINES
CONVERT NOW TO OUR NEW DESIGN BY INSTALLING:



- Off-Set Roll Arrangement
- Doffing Device Attachment
- Hydraulic Pressure

Write us regarding our new type
DOUBLE RUB TAPE CONDENSER
for adaptation to woolen cards

Duesberg-Bosson of America, Inc.
Main Street Jefferson, Mass. P. O. Box 25

How Metallizing saves money in textile mills

**cuts machine repair costs 80%—
cuts equipment "down-time"—
permits reduced spare parts stocks**

Practically any worn machine part—repaired for only 15 or 20% of replacement cost—in minutes and hours, instead of days or weeks.

Worn Equipment and Parts

Drive shaft journals	Top rolls, necks and centers
Roll journals and surfaces	Slasher roll surfaces and journals
Spindle tops and whorls	Blanket roll journals
Calender rolls and journals	Sand roll surfaces and journals

The list of metallizing users in the textile field reads like a Blue Book of the industry. Here are just a few:

Cannon Mills	Deering-Milliken	Bib Mfg. Co.
Dan River Mills	Greenwood Mills	Bruck Mills (Canada)

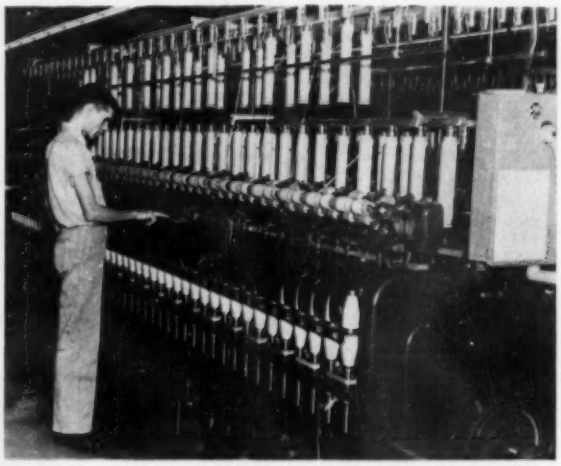
For further information write for special free bulletin "Whip Waste with Metallizing in Textile Plants."

METCO
Metallizing Engineering Co., Inc.
1159 Prospect Ave., Westbury, L. I., New York • cable: METCO
In Great Britain: Telephone: EDGEWOOD 4-1300
METALLIZING EQUIPMENT COMPANY, LTD.—Chobham near Woking, England

NEWS ABOUT SUPPLIERS Continued

NEERING CO., Cleveland, O.—Has appointed Richard A. Geuder as general manager for marketing and Carl V. Gregory as sales manager.

SELIG CO., Atlanta 1, Ga.—Has named Richard D. Printz as assistant sales manager. . . . **SKF INDUSTRIES, INC.**, Philadelphia, Pa.—Has appointed James H. Sutherland as director of sales. . . . **SMITH, DRUM & CO.**, Philadelphia, Pa.—Has elected Robert N. Smith as president, Albert Bagian as vice-president, and William H. Gray as treasurer. Harry S. Drum becomes chairman of the board. . . . **STEIN, HALL & CO., INC.**—Has elected Joseph C. Blauvelt a director and S. Crawford Bonow a vice president. Douglas Lowe has been elected a director of Stein-Hall Ltd., its Canadian subsidiary.



AMERICAN ENKA CORP. recently opened its new multimillion-dollar rayon-staple-fiber plant in Lowland, Tenn. Capacity of the new plant will be more than 50,000,000 pounds annually. Above view shows operator at the new plant determining the process characteristics of the new product.

TEXTILE MACHINE WORKS, Reading, Pa.—Has announced the return of Henry Printz, senior sales representative, from England to resume his Canadian territory. . . . **TORRINGTON CO.**, Torrington, Conn.—Has appointed E. Paul Schwarze as a sales representative in the New York branch.

UNION CARBIDE & CARBON CORP., New York, N. Y.—Has announced plans to build a 52-story office building in New York, N. Y. . . . **UNITED STATES RUBBER CO.**, New York, N. Y.—Has elected George R. Vila as vice president and general manager of the Naugatuck Chemical Div. In the company's Textile Div., V. C. McQuiddy, Jr., has been named sales manager of textile products, John H. Shaw is yarn sales manager, and Judson J. Milam, Jr., is manager of Trilok upholstery fabric.

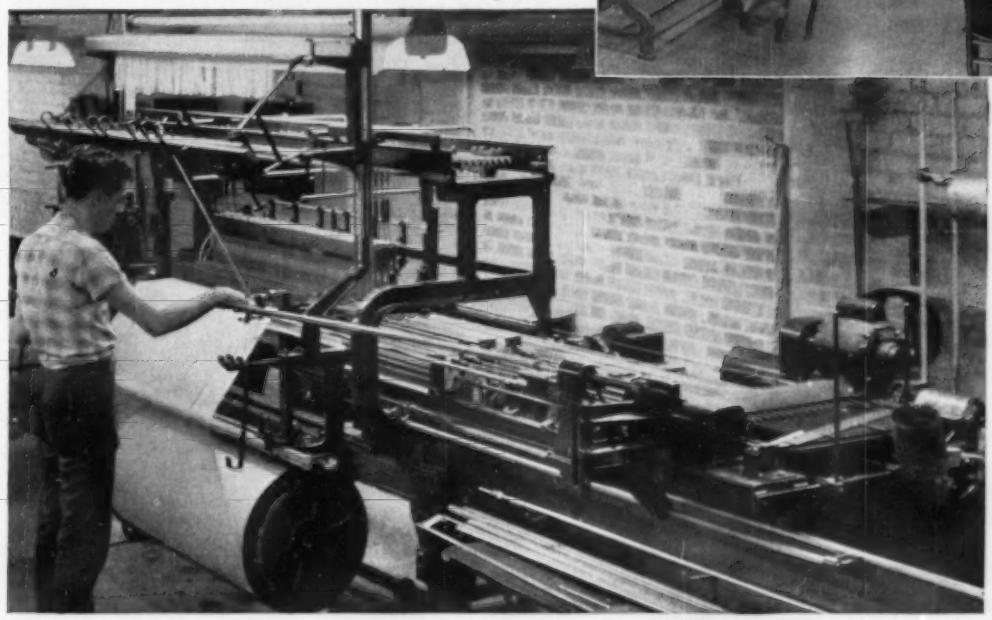
UNIVERSAL WINDING CO., Providence, R. I.—Has announced the appointment of Michael Lombardo to its service department as a specialist in looms and weaving in connection with the Unifil loom winder. . . . **VICKERS, INC.**, Detroit, Mich.—Has appointed M. A. Hayden as general manager of the new Machinery Hydraulics Div. . . . **WHITINSVILLE SPINNING RING CO.**, Whitinsville, Mass.—Has appointed Peter C. Everett as representative for Georgia, Alabama, and Tennessee, with headquarters in Atlanta, Ga. . . . **WILLCOX & GIBBS SEWING MACHINE CO.**, New York, N. Y.—Has leased a factory building in Orangeburg, N. Y., in order to secure additional manufacturing space.

IF YOU ARE

ENTERING

YOUR **WARPS**

LIKE THIS



WE SUGGEST YOU LOOK INTO THE

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WARP DRAWING MACHINE

With this machine, the time-eating task of drawing-in is speeded up tremendously. A power-driven needle, running at 127 to 230 strokes per minute (depending on the number of weaving elements to be entered), draws each thread in succession through the correct selection of drop wire, heddle, and reed dent. This correct selection is made accurately *and automatically* for each pick by a sequence of mechanical actions controlled by a pattern strip punched in accordance with the designer's draft. Very substantial reductions of drawing-in costs are possible, particularly on patterned goods such as stripes, plaids, and fancy weaves. This *modern method* of replacing warps has enabled many mills, both large and small, to meet the ever-increasing demands for a greater variety of patterns. *Your Barber-Colman representative is qualified to advise you on possibilities in your mill.*

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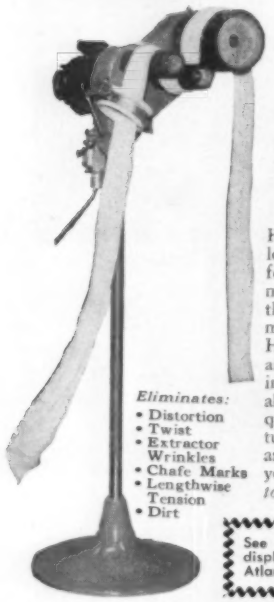
EXTRACTOR LOADER AND UNLOADER for



- Sorting Wet or Dry Goods from one truck into various trucks as to classification.
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- Conveying goods in the string from floor to floor.

HERE'S a machine that saves time loading, unloading, sorting and transferring goods—wet or dry. Precision made with sealed ball bearings throughout. Pedestal or bracket mounted. Electrically waterproofed. Head swings 360° on ball bearings and locks in any position. Motor, integral with drive, is easily detachable. Drive runs in oil. Pot Eye quickly adjustable. Check the features of this labor-saving machine and you'll see why it's the machine you can't afford to be without. *Write today!*

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COTTON MILLS

American Thread Co., Tallapoosa, Ga., is installing two additional Platt Bros. high-draft 10x5 slubbers. This brings to 10 the number of these machines now in this mill.

Chicopee Mfg. Co., Gainesville Plant, Gainesville, Ga., is installing 25,000 SMM roller-bearing spindles. This brings the total number of SMM spindles used by this plant to over 55,000.

Cone Mills Corp., Minneola Plant, Gibsonville, N. C., is making some changes in its opening and picker room with adjustable guides being put under the No. 7 feeders. The company is also combining its present two opening lines into one in order to get a better blend. A new distributor system is being installed over the pickers, and a new CMC waste machine has been purchased.

Fieldcrest Mills, Inc., Spray, N. C., is constructing a new central office building about midway between Spray and Draper, N. C. The new office will release 30,000 sq. ft. of space for expanding manufacturing operations.

Laurens Mills, Laurens, S. C., has purchased nine Saco-Lowell No. 56 high-production combers. These combers are being equipped with 15x42-in. coilers, automatic lubrication, and 4 over 5 draw boxes with automatic self-cleaning.

Mount Vernon Mills, Inc., Baltimore, Md., has acquired Williamston Cotton Mills, Williamston, S. C., formerly owned by Hesslein & Co., Inc. The mill makes print cloth and has 41,000 spindles and 1,100 looms.

Narrow Fabric Co., Reading, Pa., has purchased Athens Elastic & Braid Co., Athens, Ga.

Pepperell Mfg. Co. has switched its plant at Opelika, Ala., to the manufacture of high-quality combed cloth. The change involved the installation of new combers and looms.

Pickett Cotton Mills, High Point, N. C., is installing 64 deliveries of Versa-matic high-speed drawing for use in production of carded and combed yarns. The drawing will be equipped with extended creels for eight ends up, 15x36-in. coilers, and automatic top and bottom roll coilers. The installation is part of an extensive card-room modernization program.

Ridgeway Fabrics, Inc., Philadelphia, Pa., has been formed to purchase the assets of Wissahickon Plush Mills, Inc. The new company will make all types of pile fabrics.

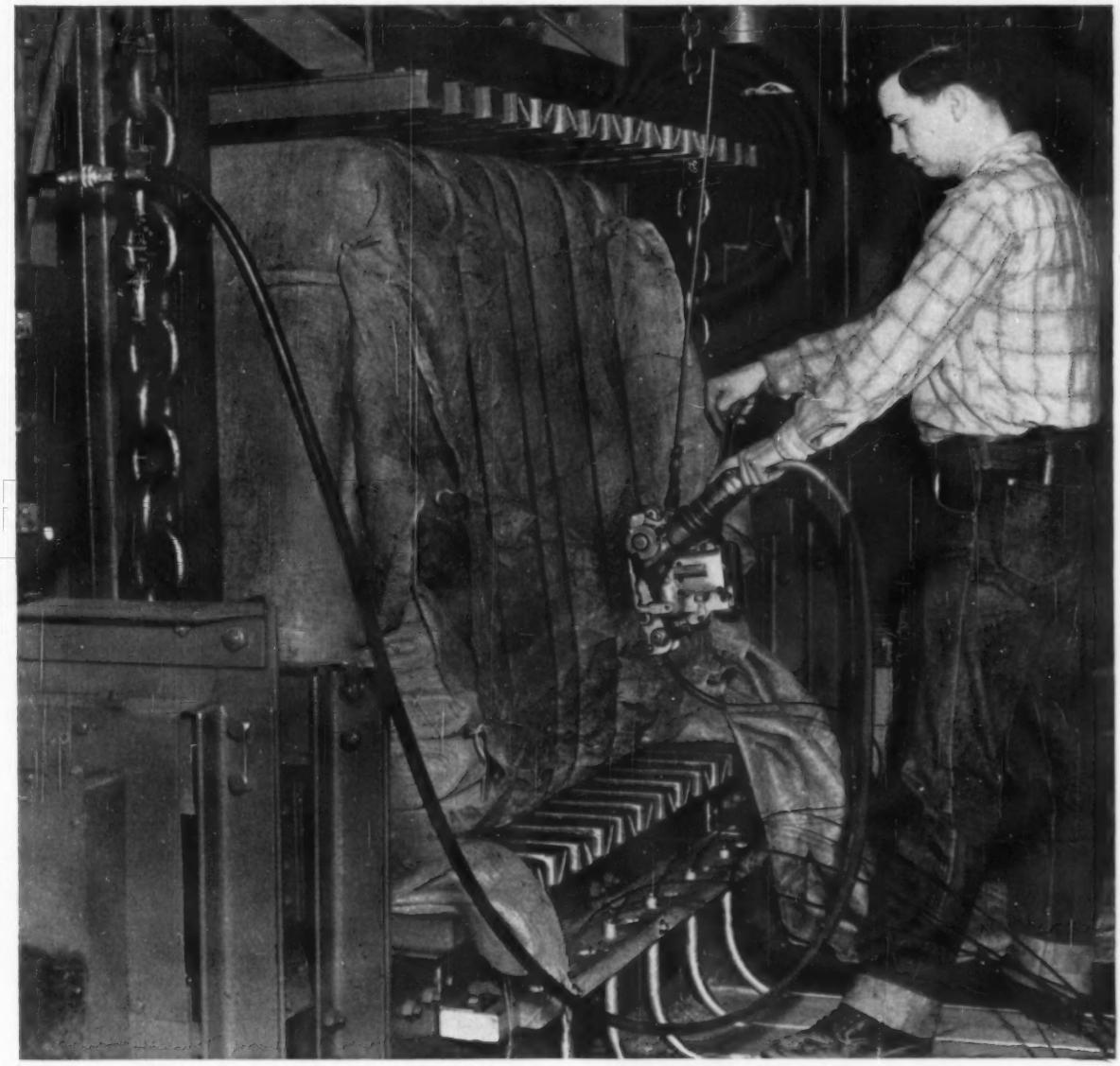
Springs Cotton Mills, Kershaw Plant, Kershaw, S. C., is expanding its building to provide for the installation of additional cards and spinning frames.

West Point Mfg. Co., West Point, Ga., is installing 48 Gwaltney spinning frames in its Lanett Mill Div., Lanett, Ala. The frames are 4-in. gauge and have 240 spindles each. This addition brings to 96 the number of Gwaltney frames purchased for the Lanett Div.

WOOLEN AND WORSTED MILLS

Manunganaug Mills, Inc., has started operations in West Gloucester, R. I., for the manufacture of wool coatings and suitings, wool-silk tweed suitings, and velvet-finished wool-mohair coatings.

Pacific Mills, a unit of Burlington Industries, has expanded its recently acquired Lexington Weaving Co. plant, Lexington, N. C., and is changing production to worsted and blended-yarn fabrics.



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This man is using the new Signode AP tool. Air power quickly tightens each strap to the same pre-set tension, and then an easy motion of the handle seals the strap and cuts it off from the dispenser. All straps share the work, and a denser, neater bale results. Eliminated are the time-wasting operations of cutting strap to length and threading seals. There's no waste of strap. The suspended tool and floor-level strap feed are inexpensive details that help simplify the job.

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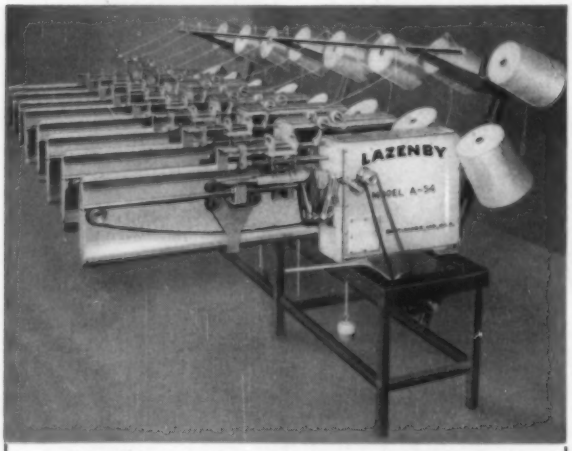

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NEWS ABOUT MILLS Continued

Peerless Woolen Mills, Rossville, Ga., has started operations in its recently acquired mill at Tifton, Ga.

B. Schoolsky & Son, Inc., is opening a processing plant for wool and synthetic waste material in Manville, R. I.

Southern Worsted Mills, Greenville, S. C., has completed the installation of 2,400 SMM-1 antifriction roller-bearing spindles.

Martin Stuart Woolen Co., Camden, Me., has taken over production of luxury fabrics manufactured by Martin Stuart Mills. The latter firm has been discontinued.

SYNTHETICS MILLS

Bates Mfg. Co., Lewiston, Me., has decided to close down its Androscoggin Div. Unprofitable operation was given as the reason for the closing.

Cabin Crafts-Needletuft Rug Mills, Dalton, Ga., is adding 25,000 sq. ft. to its Springdale plant. The company is now making an Acrilan carpet.

KNITTING MILLS

Borg Fabrics Ltd., Elmira, Ont., has started the production of a new type of knitted synthetics pile fabric for women's coats.

Chadbourn Gotham, Inc., Charlotte, N. C., will double the production facilities of its Shannon Div. at Concord, N. C., with construction of a 10,000-sq. ft. addition to the existing building. New seamless-hosiery machinery is ready for immediate installation.

Hillsborough Hosiery Mills, Hillsborough, N. H., has discontinued the manufacture of hosiery because of economic reasons but is continuing the production of woolen yarns.

Portage Hosiery Co., Portage, Wis., is building a 10,000-sq. ft. addition to its plant.

Rosemont Knitting Mills, Inc., Philadelphia, Pa., has been formed to manufacture women's and children's sweaters.

Sharnay Hosiery Mills, Madison, N. C., is concentrating its operations in Madison and has closed its plant in Millville, N. J.

Swanknit, Inc., Cohoes, N. Y., whose mill was recently destroyed by fire, has leased new quarters on the first floor of the former Harmony Mills No. 3 in Cohoes.

DYEING AND FINISHING PLANTS

Dodgeville Finishing Co., Attleboro, Mass., has purchased the former Broad River Mills plant at Blackburg, S. C., to operate a synthetics-processing branch.

Peerless Knitting Co., Charlotte, N. C., has purchased all the finishing equipment of Marietta Hosiery Co.

Chester H. Roth Co., Burlington, N. C., will build a women's-hosiery finishing plant and warehouse in San Bernardino, Calif. About 150 people will be employed when capacity production is reached.

Webco Mills, Burlington, N. C., will expand production facilities for the dyeing and finishing of its tricot production. A new company, Webco Dyers, Inc., has been formed.

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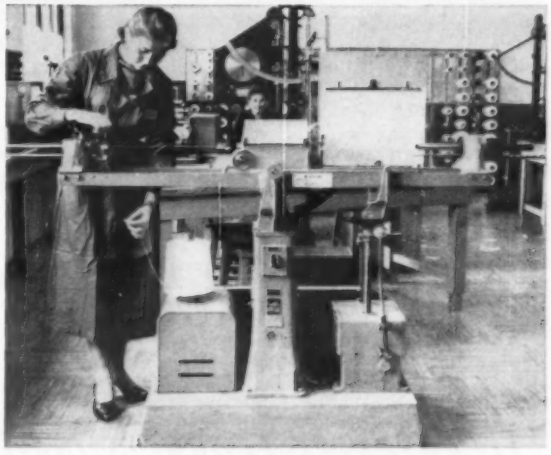

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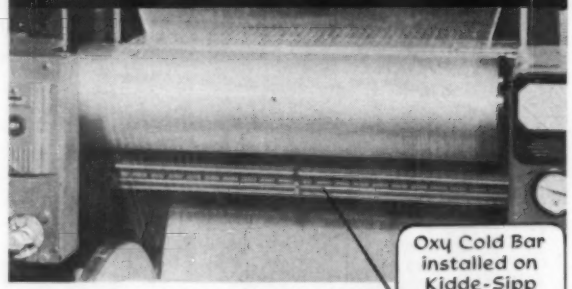

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The Oxy Cold Bar works equally well on all types of materials, Nylon, Dacron, Orlon, Acetate, Rayon, Raw Silk, Wool, etc. It operates electrically with absolute safety. It is compact and easily installed at the trouble spot.

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NEWS ABOUT MEN

J. A. Atwood, 3rd, has been elected president and treasurer of Wauregan Mills, Inc., Wauregan, Conn.

Frank L. Aultice has been appointed assistant superintendent of the Lynchburg Div., Bates Industries, Inc., Lynchburg, Va.

John W. Bagwill has been appointed director of industrial and public relations of Cone Mills Corp., Greensboro, N. C.

Melville H. Behrendt of Catalina, Inc., Los Angeles, Calif., has been elected chairman of the Pacific Southwest Section, American Association of Textile Chemists & Colorists.

Clyde H. Blair has been appointed overseer of finishing at Excelsior Finishing Plant, Pendleton, S. C.

Madison F. Bond, Jr., has been named production superintendent at Excelsior Finishing Plant, Pendleton, S. C.

A. J. Bouchard, Jr., has been named superintendent of International Fibers, Inc., Woonsocket, R. I.

J. F. Brennan has been appointed overseer of dyeing at Danielson Finishing Co., Inc., Danielson, Conn.

Lawrence C. Byerly has joined Hickory Throwing Co., Hickory, N. C., as manager.

J. C. Bynum has been promoted to assistant general superintendent of Stowe Mills No. 1, Pharr Worsted Mills, McAdenville, N. C.

George C. Cocoros has been appointed plant manager at Johnston Mill, Johnston, S. C.

John Davis has been appointed general overseer of weaving at the Lynchburg Div., Bates Industries, Inc., Lynchburg, Va.

F. Lincoln Dunlap has joined the Biddeford Div. of Pepperell Mfg. Co., Biddeford, Me., as head of the cotton department.

RAYMOND E. KASSER has been named president of Burlington Decorative Fabrics Associates, New York, N. Y.

Spencer S. Garrity has been named special advisor to the vice president for engineering at Landrum Mills, Inc., Landrum, S. C.

Julian Horton is new personnel director for operations in Alabama of Dan River Mills, Inc., Danville, Va.

Fred L. Howell, Jr., general superintendent, Kerr Bleaching & Finishing Works, Inc., Concord, N. C., has been named to the board of directors.

Carl A. Johnson has been named plant manager of the Lynchburg Div., Bates Industries, Inc., Lynchburg, Va.

Wells Kapinos has been appointed overseer of dyeing for Cowan & Shain, Inc., Haverhill, Mass.

James P. Kinard has been named vice president and general manager of Glen Raven Mills, Inc.

Arlon E. Krueger has been elected president of Comal Hosiery Mills, New Braunfels, Tex.

R. T. LeGrand, Jr., has been elected president and treasurer

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of Shelby Cotton Mills, Shelby, N. C.

James Malloy has been appointed manager of the Peerless Woolen Mill at Tifton, Ga.

Richard W. Malone has joined the Ware Shoals Div., Riegel Textile Corp., Ware Shoals, S. C., as chief methods and standards engineer.

Lester Martin has been elected president of Bates Mfg. Co. and Bates Fabrics, Inc., New York, N. Y.

Col. H. O. McGillin, QMC, has been assigned as deputy chief, Purchasing Div., Military Clothing & Textile Supply Agency—Philadelphia Quartermaster Depot, U. S. Army.

B. W. McKenzie has been made superintendent of Radford Weaving Co., Burlington Industries, Radford, Va.

Philip S. McMullan has been elected president and treasurer of Edenton Cotton Mills, Edenton, N. C.

Louis I. Mirman has been elected vice president, sales, for Atlantic Knitting Corp., Providence, R. I.

William H. Moore has been appointed manager of the Kingsley Mill of Deering, Milliken & Co., Inc., Thomaston, Ga.

Earl Mullinax has been appointed superintendent of Stowe Mills No. 1, Pharr Worsted Mills, McAdenville, N. C.

Joseph Nash has been appointed overseer of finishing at Wallisford Mills, Keene, N. H.

Reinhold C. Peterson has been elected president of Nelson Knitting Co., Rockford, Ill.

James Ratcliffe has been appointed assistant manager of Duplan Dyeing Co. Ltd., Valleyfield, Quebec.

John H. Rice has been elected president of A. H. Rice Co., Pittsfield, Mass.

H. L. Roberts has been elected a vice president of Duplan Corp., Charlotte, N. C.

JAMES S. LOVE, JR., has been appointed president of Burlington Narrow Fabrics Co., New York, N. Y.

A. D. Robison, executive vice president, Kerr Bleaching & Finishing Works, Inc., Concord, N. C., has been named to the board of directors.

Bernard S. Saunders has been appointed vice president and general manager of Woods Mfg. Co. Ltd., Montreal, Que.

Eric Schmidt has been named president of Maununganaug Mills, West Gloucester, R. I.

Frank Sertl has been appointed general superintendent of production for Landrum Mills, Inc., Landrum, S. C.

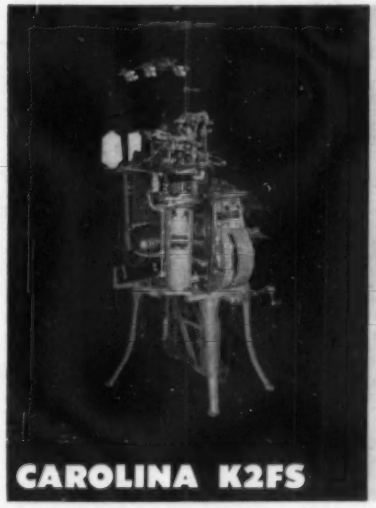
Herbert J. Smith, Jr., has been appointed chief administrative officer of Charlottesville Woolen Mills, Charlottesville, Va.

Henry Speier has been named agent of Standish Mills, Esmond, R. I., and Fairfax Mills, Pawtucket, R. I.

William H. Stallworth, Jr., has been appointed chief engineer at Excelsior Mills, Union, S. C.

Job Steere has been appointed superintendent of Maununganaug Mills, West Gloucester, R. I.

P. C. Stott, Jr., has been named superintendent of the Altavista Weaving Plant of Burlington Mills at Altavista, Va.



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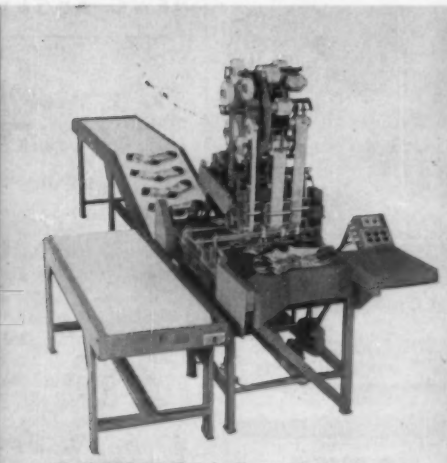

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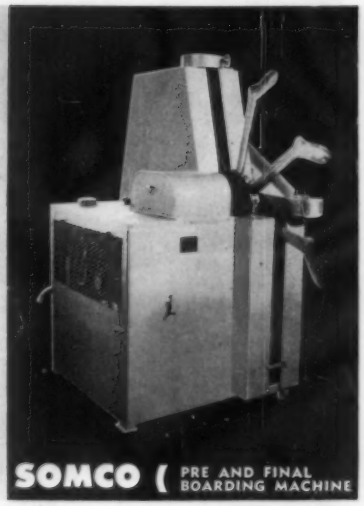

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Have you made your reservation?

for the forty-third
KNITTING ARTS EXHIBITION

the "WORLD'S FAIR" of the knitting industry
April 29 - May 3, 1957
Atlantic City Auditorium
Atlantic City, N. J.

CHAS. T. MAIN, INC.
ENGINEERS

TEXTILE MILLS AND OTHER INDUSTRIAL PLANTS

Electrical, Steam, Diesel and Hydraulic Engineering
Machinery Reorganizations — Water Supply
Investigations, Reports and Appraisals
Construction Supervision

80 FEDERAL STREET, BOSTON, MASSACHUSETTS
317 SOUTH TRYON STREET, CHARLOTTE, N. C.

NEWS ABOUT MEN Continued

R. H. Tenney has been named general manager of Lamb Knit Goods Co., Colon, Mich.

Richard A. Tremaine has been appointed manager of Duplan Dyeing Co. Ltd., Valleyfield, Que.

Robert Van Ham has been named superintendent of finishing at the Farnsworth Mill of Deering, Milliken & Co., Lisbon Center, Me.

Robert M. Walshaw has been promoted to assistant superintendent of the Franklin Mill, American Felt Co., Franklin, Mass.

Arthur D. H. Ward has joined Northern Dyeing Corp., Washington, N. J., as construction technician.

Roy Way has been appointed assistant superintendent, Print Works Plant, Cone Mills Corp., Greensboro, N. C.

Frederick C. Wedler has been named president of Burlington Finishing Co., subsidiary of Burlington Industries, Greensboro, N. C.

Frank C. Williams, Jr., has joined the standards department of Springs Cotton Mills, Fort Mill, S. C.

Thomas R. Williams has been promoted to corporate director of methods and standards for Riegel Textile Corp., Ware Shoals, S. C.

Joseph B. Zwisler has been promoted to vice president and secretary-treasurer of Phoenix Hosiery Co., Milwaukee, Wis.

Textile World

OBITUARY

John M. Bell, 63, president of John M. Bell & Co., Atlanta, Ga.

Richard T. Chatham, 60, retired president of Chatham Mfg. Co., Elkin, N. C.

J. Arthur Claypoole, Sr., 73, former president of Lima Woolen Mills Co., Lima, Ohio.

James A. Cooper, 62, retired president of Harriet-Henderson Cotton Mills, Henderson, N. C.

Charles M. Geer, Sr., former executive of Callaway Mills, LaGrange, Ga.

Herbert C. House, 73, chairman of the board, Charles W. House & Sons, Inc., Unionville, Conn.

John O. Hunt, 71, president Southern Loom Development Co., Greenville, S. C.

Edwin R. Jerome, 62, former president and general manager of Victor Ring Traveler.

Erskin T. Johnson, 40, superintendent of Miller Smith Hosiery Mills, Chattanooga, Tenn.

Richard H. Lippincott, 55, former vice president of Holeproof Hosiery Co., Milwaukee, Wis.

Claude L. McGhee, 77, former secretary-treasurer of Franklinton Hosiery Mill, Franklinton, N. C.

Lewis R. Parker, 52, president of Albany Felt Co., Albany, N. Y.

G. H. Rauschenberg, 67, president of G. H. Rauschenberg Co., Dalton, Ga.

Adrian L. Shuford, Sr., 72, senior advisor to Riegel Textile Corp., Conover, N. C.

Joseph A. Vervaet, Sr., 57, president of Jersey Woven Label Co., Paterson, N. J.

Alexander F. Zimmerman, manager of Zimmerman Mfg. Co., Hamilton, Ont.

The CSI Stoll Quartermaster

UNIVERSAL

WEAR TESTER

Model CS-22C

For measuring:

- **SURFACE ABRASION**
- **FLEX ABRASION**
- **EDGE ABRASION**
- **PILING**

Reports by leading companies throughout industry have proven that the CSI Stoll Quartermaster Universal Wear Tester is a vital factor in both research and quality control. This multipurpose instrument will measure the resistance to surface, flex and edge abrasion of such materials as woven and knitted fabrics, napped and pile fabrics, hosiery, felt, non-woven and coated fabrics, yarns, threads, cordage, plastic films, rubber sheeting, leather, paper and many others.

ASTM Designations:
D1175-55T "Test for Abrasion Resistance of Textile Fabrics."
D1379-55T "Test for Abrasion Resistance of Textile Yarns."
D1375-55T "Test for Piling Propensity of Textile Fabrics."

Federal Specifications:
CCC-T-191b Method No. 5300.
CCC-T-19 1b Method No. 5302.

As our name implies we also welcome the opportunity to work on custom design and manufacture of testing instruments of all types for individual and general needs.

CUSTOM SCIENTIFIC INSTRUMENTS, INC.

541 Devon Street **Kearny, N. J.**

Here's A Positive Way to test your Bucket Type Steam Traps!

- **NO GUESSWORK**
- **NO MOVING PARTS**
- **SELF SCRUBBING**

VIS-A-PLUG

THE TRANSPARENT TEST PLUG TO CHECK STEAM TRAPS AT-A-GLANCE

Save STEAM

If your trap is OKAY . . . a FILL & EMPTY cycle of condensate occurs each time the trap dumps—and shows up in the Vis-A-Plug sight glass.

If your trap is FAULTY . . . a STEADY continuous condition shows up in the Vis-A-Plug sight glass.

Save DOLLARS

Manufactured exclusively by

Vis-A-Plug Inc.

P.O. BOX 100
KING OF PRUSSIA, PENNA.

WRITE FOR BULLETIN OR CONTACT YOUR LOCAL TRAP REPRESENTATIVE

The Laurel Leaf

BUSINESS MAGAZINE EDITION

Laurel HYDROCOP and 3B SOFTENER have long been recognized as the leaders in the field of knitting yarn conditioning and lubrication. If you have not tried them on your yarns, check these advantages to see how you can achieve that "something extra" which will put your yarns well up in front in the sales parade:

Laurel HYDROCOP and 3B SOFTENER
. . . lubricate the yarn and insure smooth running and even stitches with a resulting better garment.
. . . give a softer, better cone which reduces the number of pulls and sloughs off the cones.
. . . condition the yarn which results in a stronger yarn with less breaks.
. . . provide equally satisfactory results on natural, bleached or dyed yarns.
. . . cause no odor or color changes, and need not be scoured out of the goods.
. . . provide excellent results on all natural, synthetic and blended spun yarns (particularly cotton, wool, worsted, Cashmere and Orlon).
. . . are readily removed from the cloth in a regular scour or boil-off and will not interfere with any subsequent dyeing, bleaching or finishing process.
. . . are easily prepared for use and form stable emulsions which are applied to the yarn from emulsion troughs or any standard coning or winding machine.

Why not put these advantages to work for YOU? Write us today for generous samples and detailed working instructions. Our experienced representatives are also available to discuss your specific problems. Write TODAY while you think of it.

Laurel Brand

Laurel SOAP MANUFACTURING CO., INC.
TIOGA, THOMPSON & ALMOND STS., PHILA. 34, PA.

Warehouses: Paterson, N. J., Chattanooga, Tenn., Charlotte, N. C.

A PRIME OUTLET FOR GOOD PUBLIC RELATIONS

and a desperately-needed public service

One of the most effective public relations jobs ever accomplished was achieved last year by hundreds of companies and individual businesses of every size.

These companies have been helping to sustain an advertising campaign that performs a desperately-needed public service: It shows the American people how to drive to stay alive. It also portrays the almost unbelievable fact that more than 40,000 men, women and children were killed in traffic accidents last year—and tells what to do to help stop highway homicide.

The campaign was prepared by a volunteer advertising agency in cooperation with The Advertising Council and The National Safety Council. But the over ten million dollars worth of time and space which carry the messages to the public was contributed by media owners or sponsored by business organizations, in the public interest.

Your own plans may readily permit the inclusion of such advertising—both from the view of the vital public service it would perform, and the incalculable good will it would promote for your name, your company, and your product or service.

To find out how easily your own program can tie in with this nationwide effort, and for the complete story on who, what, when and where, we sincerely invite you to write to The National Safety Council, Chicago 11, Illinois.

Published in cooperation with
The National Safety Council
The Advertising Council

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities — executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work

Civil Service Opportunities
Selling Opportunities Wanted
Selling Opportunities Offered

Employment Agencies
Employment Services
Labor Bureaus

DISPLAYED ——RATES—— **UNDISPLAYED**

The advertising rate is $17.00 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

$1.50 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Position Wanted—½ the above rate.
Box Numbers—counts as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.
Not subject to Agency Commission.

Send NEW ADS or Inquiries to Classified Division TEXTILE WORLD, P. O. Box 12, N. Y. 36, N. Y. for May issue closing April 15th

WANTED
INDUSTRIAL ENGINEER

Around 35, 5/10 years experience professionally as part of consulting concern preferred. For long established textile organization. Good opportunity.

Reply to Drawer 352, Shelby, N. C.

FOR RATES OR INFORMATION

About Classified Advertising

Contact The McGraw-Hill Office Nearest You

ATLANTA, 3
1301 Rhodes-Haverty Bldg.
JAckson 3-6951
D. BILLIAN

BOSTON, 16
350 Park Square
HUbbard 2-7160
H. J. SWEGER

CHICAGO, 11
520 No. Michigan Ave.
MOhawk 4-5800
W. HIGGENS

CINCINNATI, 37
1825 Yorktown Road
Swifton Village, Apr. 2
REdwood 1-3238
G. MILLER

CLEVELAND, 15
1510 Hanna Bldg.
SUperior 1-7000
W. SULLIVAN

DALLAS, 2
Adolphus Tower
Main & Akard Sts.
Riverside 7-5117
E. SCHIMER

DETROIT, 26
856 Penobscot Bldg.
WOodward 2-1793
W. STONE

LOS ANGELES, 17
1125 W. 6 St.
MAdison 6-9351
D. McMILLAN

NEW YORK, 36
330 West 42nd St.
LOngacre 4-3000
R. LAWLESS
S. HENRY
D. COSTER

PHILADELPHIA, 3
17th & Sansom St.
RIttenhouse 6-0670
H. BOZARTH

SAN FRANCISCO, 4
68 Post St.
DOuglas 2-4600
W. WOOLSTON

RACHEL KNITTER-MECHANIC

New corp. forming terrific deal for right man! ! !

P-4530, Textile World,
Class. Adv. Div., P.O. Box 12, N.Y. 36, N. Y.

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)
LOS ANGELES: 1125 W. 6th St. (17)

POSITIONS VACANT

Circulation manager on industrial publication. Must have sales and writing ability and knowledge of mill work. P-4078, Textile World.

Wanted—competent latch needle rib fixer for plain work on Wildman machines. Opportunity for advancement for right man. Write William Fette, The Adler Co., Cincinnati 14, Ohio.

Technical Staff Positions: Chemist or Chem. Eng.; Textile Chemist; and Technical Writer. Recent graduates or men with up to 10 years experience. Expansion in research staff of leading trade association offers wide experience in textile research field with opportunities for travel, tech. meetings and publications. Salary commensurate with experience; full security benefits. Location Washington, D. C. P-4624, Textile World.

SELLING OPPORTUNITY OFFERED

Manufacturer's Representatives and Distributors—wanted to handle sales and service of miniature (¼ H.P. up to 5 H.P.) electric steam generators up to 100 lbs. pressure—each unit bearing a Registered National Board of Boiler and P. V. I. Number, individually inspected under the miniature boiler code. We have specialized in this field for 10 years and desire only men who know and work with steam, or equipment requiring steam for its operation. Please reply Box RW-4033, Textile World.

POSITIONS WANTED

Progressive young woven label man will consider change. Top experience in management production, loom fixing and assembling, weaving, cardcutting, etc. PW-4674, Textile World.

Textile engineer & machine designer, extensive experience in design and development machinery including Narrow, Brading, & etc. Desire responsible position. Reply: Erec., c/o E. Frank, 189 E. 18th St., Brooklyn, N. Y.

Textile Engineer; experienced staple fiber spinning & fancy yarns desires responsible position here or abroad. PW-4505, Textile World.

Personnel Managers—Need experienced Engineers and Technicians? We offer a booklet especially prepared to help you solve this problem. Write for your "free" copy of "Reservoir of Engineers and Technical Men". Textile World, P. O. Box 12, New York 36, N. Y.

AVAILABLE

High Grade Textile Mill Man with over 20 years experience in originating—Fabricating—Manufacturing Woolen and Worsted Fabrics for Womens and Mens Wear.
Long experience as Liaison Man between the Mill and the Selling Office.
Desires responsible position.

PW-4563, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SEE CHEMSTRAND'S AD on Page 189 of THIS MAGAZINE

Positions available for

ENGINEERS

(Chemical, Mechanical, Metallurgical, Textile, Industrial, Instrument and Civil) and

CHEMISTS

(Organic, Physical Analytical—Instrumental and Wet Method, Textile Chemists.)

Write to Technical Personnel Department

THE
CHEMSTRAND
CORPORATION
Decatur, Alabama

PROJECT ENGINEER

Graduate mechanical engineer with about 5 years experience with progressive firm having multi-plant operations. Excellent opportunity. Work covers investigation for projects, design, construction, maintenance, steam and electric power. Send complete resume including salary requirements.

Industrial Relations Department
ALBANY FELT COMPANY
Albany 1, New York

SUPERINTENDENT

wanted for synthetic weaving mill in

AUSTRALIA

Well established Company; all American equipment. Send resumes and salary requirements to Mr. Lee at

BRUCK MILLS LIMITED
Cowansville, Que., Canada

POSITIONS OPEN

WE CAN PLACE—Supt. nylon throwing plant; bleach, dye, and finish plant supt.; designers, cottons, rayons, woolens and worsteds; Salesman heavy industrial chemicals; boss dyers and second hands.

Weaving supt. narrow fabrics; overseers wet and dry finishing and second hands; boss napper; head finished examiner woolens and worsteds; designers wide and narrow elastic fabrics; master mechanics; mach. shop foreman.

Chemists; asst. supts. woolen mills; second hands all depts.; loom fixers; garnett foreman; overseer synthetic quilling and twisting; shoddy-garnett salesman; overhauler cotton cards; boss picker; felt finisher; looper-seamer fixer.

SEND US YOUR RESUME if available. There is a steady demand for good men.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Boston 8, Mass.
Phone: LI 2-6547
Over 55 Years In Business

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

BUSINESS OPPORTUNITIES — EQUIPMENT - USED or RESALE

UNDISPLAYED RATE:

$1.50 a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

PROPOSALS. $1.20 a line an insertion.

BOX NUMBERS count as one line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED RATE:

The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send New ADVERTISEMENTS or Inquiries to Classified Adv. Div. of Textile World, P. O. Box 12, N. Y. 36, N. Y. for May issue closing April 15th

PRIVATE SALE
MODERN TEXTILE PLANT
SELLING SURPLUS MACHINERY

40—Draper XD Looms, 46", 16 harness dobby, motor, 1950.
208—Draper XD Looms, 46", 104-20 harness dobby; 104-cam type, motor, 1949.
1—Johnson 9 Cylinder Slasher, 60x30" cans, 1950.
6—Abbott Quillers, 4-120 spdls; 2-110 spdls, hoist, 1948 & 50.
1—B-C Portable Tying-In, 56", Model LL, 1950.
1—Terrell Bobbin Stripper, Model L, w/hoist.
4—C&M Inspection Machines, 50" cloth, Model SZA, 1950.
2—Standard Inspection Machines, 50" cloth, motor, 1956.
1—Hermas Inspection Machine, 50" cloth, motor, 1950.
1—S-L Rayon Blending Unit, w/Honan Fibre Meters, Superior Cleaner.
2—Aldrich Rebuilt Single Process Pickers, 40" wide, 2 beaters.
1—Kitson Finisher Picker, 40", 1 beater, rebuilt 1956.
8—Woonsocket 8x4 Slubbers, Whitin Superdraft-1948, 144 spdls. each, motor.
1—Hermas Model AV Shear, 4 blades, 58" wide, w/Duplex Sewing Head and Air Filter.

OTHER LOCATIONS

65—C&K C4 Looms, 78", 4x1 convertible, 20 harness Gen Head, 1948.
85—Draper Model X Looms, 40" cloth, Lacey Tops, motor, 1934.
8—Werner S.S. Dye Jiggs 72", motor, 1954.
16—S-L 5 Roll Controlled Draft Drawing, 4 del. per frame, 15" coiler.
8—S-L 5 Roll Controlled Draft Drawing, 4 del. per frame, 12" coiler.

Republic
TEXTILE EQUIPMENT COMPANY
Tel: Courtland 7-1591 — 40 Worth Street, New York 13, N. Y., U. S. A.
REFINANCING • APPRAISALS • PURCHASE & SALE
LIQUIDATIONS OF MILL PROPERTIES • PURCHASE AND SALE OF USED MACHINERY

FOR SALE

Sale or lease, complete mill for mfg. of narrow bindings or ribbons. 86 looms 15'4" wide, winders, warpers, & quillers. Located in Bethlehem, Pa. Corporate operating tax loss of $42,000. available. Write D. Taub, CPA, 164-09 Hillside Ave., Jamaica, N. Y.

RACHEL KNITTER
Contract work offered. Year round guarantee Yarn provided
CW-4529, Textile World,
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

WANTED

DYESTUFFS
Will buy your surplus and obsolete dyes and chemicals for cash.
NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.
Established 1919

WANTED TO BUY
72" W-3 Worsted Looms
Automatic chains, let-off preferred, convertible or non-convertible, 18 or more on same L. O. When replying, please give L. O. number and price.
BLACKSTONE MILLS, INC.
Clinton, Mass.

WE HAVE FOR SALE
1—VV 50'—56" Palmer-tenter 1941
1—VV-2 roll 56" pad
1—Werner 60" jigg
1—Textile set of 12-50" dry cans 10 copper—2 SS
1—Measure-o-graph—70"
1—VV 72" Palmer—low type
1—VV—64" Buttonbreaker
1—82" tuber, Spare quetch, calendar and pad rolls
2—VV 60" tensionless jiggs
38—SS dye becks 5' to 16'
2—12' SS dye becks with covers
25—SS Finishing trucks 66" x 43"
50—SS Box trucks 60" x 36" x 30"
8—Merrow 60D3b
MAR-DAY TEXTILES
52-60 BERKSHIRE AVE. PATERSON 2, N. J.
MU 4-5132

MILLER MACHINERY CO.
66 RAILROAD AVE. PATERSON, N. J.
Tel. Sh 2-5467-8
Textile Machinery and Supplies
BOUGHT AND SOLD
Warpers • Winders & Quillers • Looms

HOSIERY MACHINES
used and rebuilt
KNITTERS — RIBBERS — LOOPERS
CYLINDERS — DIALS — TRANSFERS
HOSIERY NEEDLES AND PARTS
JOS. BRESANI
N. W. Cor. Hancock & Somerset Streets
Phila. 33, Pa.

WANTED
Small Stainless Steel
PACKAGE DYEING MACHINE
Size: — up to 50 pounds.
W-4565, Textile World,
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

"SPECIALIST IN THE DISMANTLING, MOVING AND ERECTING OF TEXTILE MACHINERY"

LOUIS P. COTE, INC.
317 Blucher Street, Manchester, N. H.
Telephone: NAtional 3-1533 or 4-4271

- Rigging
- Packing
- Fully Insured
- Export Crating
- Local and Interstate Moving

IF THERE IS
Anything you want
that other readers of this paper can supply
OR—
Something you don't want
that other readers can use, advertise it in the
SEARCHLIGHT SECTION

LATE TEXTILE MACHINERY

. . . PRICED FOR QUICK SALE

40 U S TEXTILE FACE DRIVE TWISTERS
1950-1951 HEADLESS PACKAGE DD
8" GAUGE • • 160 SPINDLES. • • 2 MOTORS
440 VOLT, 3 PHASE, 60 CYCLE • • MAGNETIC STARTERS
NYLON BOBBINS • • ALL ACCESSORY EQUIPMENT

12 U S TEXTILE 1951 HI SPEED REDRAWS
SPINDLELESS • • 7" GAUGE • • 60 SPINDLES PER
MOTORIZED • • 3 PHASE • • 220 V • • 60 CYCLE
LIKE NEW CONDITION

40—UNIVERSAL #50 TUBE WINDERS • 1⅝" QUICK CHANGE ADAPTERS
½" ROLLER BALES • STAINLESS STEEL EMULSION TROUGHS
COMPLETE • LIKE NEW CONDITION

Sipp Eastwood 1953
DIRECT WARPER
1—NASH MODEL 88
BOBBIN POLISHER

45 Whitin-Schweiter
AUTO QUILLING SPINDLES
Units of 2-15—1-12—1-3
1945-1947 Model

2-ATWOOD UNIRAILS
MODEL 501-1954
192 SPINDLES • • DD • • 6" GAUGE
BOBBIN DELIVERY • • COMPLETE WITH
BOBBINS AND RACKS
EXCEPTIONAL BUY

Late-type DYE HOUSE MACHINERY

1—3' SHALLOW DYE BECK
Rodney Hunt. Stainless Steel, open top. 1947 model.

JAMES HUNTER 1950 2' SAMPLE DYE BECK
Stainless Steel. Totally enclosed. Complete.

2—BEAM TO BEAM POWER INSPECTION FRAMES
Van Vlaanderen and Progresive. 75" to 64" face rolls. Variable speed forward and reverse.

3—VAN VLAANDEREN TUBING MACHINES
High speed, 70" cloth. 1948-1950 model.

1—VAN VLAANDEREN 70" Stainless Steel Dye Jig

1—EXTRACTOR—AMERICAN LAUNDRY
42" • • Stainless Steel

MONEY MAKING NARROW FABRIC LOOMS

8 Fletcher 48-49 VENETIAN BLIND LOOMS
24 space 4 shuttle cross shot.

4—C&K VENETIAN BLIND TAPE LOOMS
2 shuttle cross shot string tape.

12—1947 C&K TAPE LOOMS
Heavy duty chain heads. 30 space battens, pick clocks, motorized.
LOOMS BUILT TO YOUR SPECIFICATIONS

5—HUSSONG DYEING MACHINES
ALL STAINLESS STEEL 1951-53
1—600 LB. & 1—100 LB.
COMPLETE

H & W 6 YARN CONDITIONERS
ALL ELECTRIC—44-48 Models

1—ROYLE 400 & 600 CONVERTIBLE JACQUARD REPEATING MACHINE
Phila.-Index

1—1949 GLODDIE QUILLING MACHINE
Belt driven. Complete with motorization and auxiliary equipment.

12 SIPP EASTWOOD REDRAWS
1949 MODELS
HIGH SPEED • SPINDLELESS
60 SPINDLES PER

ONLY A PARTIAL LISTING

Wm. Rabinowitz & Sons
TEXTILE MACHINERY, BOBBINS & SUPPLIES
214 - 222 Hamilton Street Phone HEmlock 3-7497 3-7498 Allentown, Pa.

FOR SALE
LIKE NEW EQUIPMENT

16—Face drive, tapered end, headless package, double deck twisters—8" spacing, 184 spindles per machine

3—U. S. Textile, high speed spoolers, 12" spacing, 7" traverse, single deck, 60 spindle machines

1—U. S. Textile, high speed vertical spooler, 7⅝" traverse, bottle wind, 7" spacing, single deck machine, 100 spindles

Also:

Sizing equipment complete with stainless steel circulating system, including 16 gangs, Model 250 B Universal Winding machine.

Reply to

FS-4528, Textile World,
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

BIALEK'S BEST BUYS

100—S5 AUTO. 2x1 WITH S-6 CLUTCH 56" R.S., EQUIPPED

48—W3 AUTO. 4x1. 1948-9. 76½" B.S., COMPLETELY EQUIPPED

WHITIN AUTO QUILLERS
BARBER-COLMAN KNOTTERS. M.D.
WHITIN C-2 TRICOTS
REINER RT-1 TRICOTS

UNIVERSAL NO. 50 CONERS. WITH S.S. EMULSION ROLLS. TROUGHS.
PINEAPPLE; 1953
TERRELL BOBBIN STRIPPERS

24—S-6. 2x1. 56" R.S. WITH DOBBY AND LENO MOTION

30—DRAPER "XD". 46". WITH DOBBY. DIEHL DRIVE

THEODORE BIALEK & CO.

6704 Empire State Bldg.
New York 1, N. Y.
Longacre 3-4978-9

11-20th Ave.
PATERSON, N. J.
Lambert 3-5886-7

WAREHOUSE STOCK
DYEING AND FINISHING EQUIPMENT

1—BRUSH & SANDING Machine, P&W., 68", 4 Cylinder, folder, motor.
1—WET BRUSH, P&W., 6", 2 Cyls. 34" dia., tank and folder.
1—KNITGOODS CALENDAR, Pernick, 36", S.S. Rolls, stretchers, steamer, motors.
1—CLOTH CONDITIONER, Sjostrom, NEW, 64", S.S. Rolls, Pump, folder, rollup. V-S Drive.
4—CHINCHILLA Machines Hunter, & Kenyon, 63", adjustable eccentrics.
1—SEMI-DECATUR, P&W., 1949, Cyl. 72"x60" dia., Air Guiders, L6 Vac. Pump, hoist.
2—SEMI-DECATURS, Gessner, 36" dia. Cyls. x 72" and 75". Vac. Pump, motors.
1—DESPECKING Machine, P&W., 89" w/scray, Exhaust fan, folder, motors.
3—DOUBLING, WINDING & MEAS. Machs., P&W., 66", 76", 80", motor driven.
1—KNITGOODS DRYER, NEW, Horn type w/manifold, pipes, spreaders, takeups.
1—Centrifugal EXTRACTOR, Tolhurst, 60", S.S. Basket, 10 Hp. Vertical motor.
1—Vacuum EXTRACTOR, Gessner, 72", Nash #3 Vac. Pump, P.I.V. Drive, 15 Hp. motor.
1—Piece Dye KETTLE, R&L., totally enclosed, S.S., 12 Piece.
1—KNITGOODS NAPPER, McCreary, 60", 10 gear driven rolls, swing folder.
3—Single Acting NAPPERS, D&F., 72", 80", 14 gear driven rolls, folders, motor driven.
2—Single Acting NAPPERS, Gessner 80", 18 Rolls, V-Belt driven, V-belt motor drives.
4—Double Acting NAPPERS, D&F., 80", 24 Belt driven Rolls, Cone Pulley energy adj., V-belt motor driven.
1—Double Acting NAPPER, D&F., 72", 24 Belt driven Rolls, Cone pulley energy adj., folder.
1—Open Type BALING PRESS, Galland-Henning, 56" x 36" x 5', Downstroke, Controls.
1—Rotary STEAM PRESS, VOELKER, Cyl. 15½" x 86", double bed. Reeves V-S Drive.
1—Rotary STEAM PRESS, Gessner, 66", Cyl. 14-15/16" da., folder, motor drive, controls.
1—Blanket type Rotary CLOTH PRESS, Gessner, Cyl. 74" x 14¾" dia., New Woolen Blanket.
1—Portable Railway SEWING Mach., C&M, for 54" Cloth, ¼ Hp.
1—Portable Sewing Mach., Merrow, Model 60ABBY4, tract. HP. motor drive.
1—Auto. SHEAR, P&W 60", 4 Blade, Auto. Seam let-thru, blower, motor.
2—Woolen SHEARS, P&W., Model A, 66½", List Saver and plain rests, folder.
1—Double SHEAR, C&M., 8/4 Flat Blade, motor drive.
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1—Flax Fiber Softener
84—Spindles Whitin Schweiter Filling Winders with Hoppers
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1—Cocker Warper, Reliance Dr., 1949, 840-end Creel
1—Sipp Warper, 1948, EN8039, Cotton System
1—Abbott Filling Winder, 100 spindle, 1948
2—Model L Bobbin Strippers and Hoists
4—Model K Bobbin Strippers and Hoists
2—Universal Atwood Unirail Uptwisters, Dble. Deck
4—Universal Atwood Utility Uptwisters
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1—Schofield 72" Carding Picker, 1950
1—Lazenby Mod. K, 30 sp. Cop Winder, 1952
1—Hermas Cloth Meas. & Roll. Machine, 1953
1—P. & W. "Vertitex" Cloth Exam. Machine, 1952
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2—48" Davis & Furber Fearnaught Pickers with oiling attachments.
1—48" Davis & Furber 6-bar Mixing Picker, motor driven.
1—36" Curtis & Marble Burr Picker with automatic feeder, motor driven.
8—Whitin Model BJ2 Ring Trap Twisters, 5½" gauge, 4" dia. self-oiling rings, 200 spindles each. Individually motor driven. 1944 model.
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4—Foster Machine Co. Model 102 Cone Winders, 100 spindles each, 6" traverse, 3° 30 min. paper cones, slub catchers. Individually motor driven.
1—Foster Model 57 Doubler, 100 spindles, 6" traverse, 2 ends up, anti-ballooning guides, motor driven.
1—63-spindle Whitin Schweiter Automatic Filling Bobbin Winder with automatic loader. Consisting of: 3—21 spindle units and with bobbin doffer conveying system. 1951 Model.
1—107" Davis & Furber High Speed Cone Dresser and Beamer. Consisting of: 2 Cone Reels, 2 Beaming Heads, Hack Stand, 384 end Magazine Cone Creel equipped with electric stop motions. Motor driven. Late type.
1—Yarn Vacuum Steamer, insulated steel plate, equipped with—
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6—Curtis & Marble Truslow Blenders. Belt driven.
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1—86" Birch Bros. Vacuum Scutcher, Stainless Steel Beaters and with Nash Hytor Vacuum bronze Pump size L5. Motor driven.
1—76" Arlington Machine Co. Vacuum Scutcher, Stainless Steel Beaters with Nash Hytor Vacuum Pump size L6. Motor driven.
1—80" Birch Bros. 2-roll Pneumatic Squeezer 14" dia. x 80½" face rubber rolls, stainless steel pan. Motor driven. 1954 model.
1—72" Textile 3-roll Hydraulic Mangle, 2 rubber covered rolls, 1 chrome plated roll, Mt. Hope guiders, accumulator and pump, stainless steel pan. Motor driven.
1—96" Riggs & Lombard 12-string Dolly Washer, rubber rolls, 93" face x 14" dia., roller bearings, wooden tub, stainless steel separators. Motor driven.
1—72" 2-bowl Yorkshire Crab, stainless steel sprayed rolls with temperature recorders, unrolling and rolling up attachments. Motor driven.
4—6' Riggs & Lombard stainless steel totally enclosed Piece Dye Kettles. Motor driven.
2—7' Riggs & Lombard stainless steel Piece Dye Kettles. Motor driven.
5—8' Riggs & Lombard stainless steel totally enclosed Piece Dye Kettles. Motor driven.
3—11' James Hunter stainless steel totally enclosed Piece Dye Kettles. Motor driven.
2—12" Riggs & Lombard stainless steel totally enclosed Piece Dye Kettles. Motor driven.
2—76" x 90' long Textile Machine Co. straightaway Pin Tenter Dryer with Andrews and Goodrich 4 tower tenter housing, equipped with overfeeds, electric guiders, mechanical guiders, Nash Hytor vacuum pumps with slotted tubes, Taylor Fullscope automatic temperature controllers and recorders. Motor driven.
1—74" x 72' long Butterworth straightaway Pin Tenter Dryer with Andrews and Goodrich 3 tower tenter housing, equipped with overfeed, Askania automatic guiders, mechanical guider, Nash Hytor pump, with slotted tube and with Taylor Fullscope temperature controller and recorder. Motor driven.
24—Bahnson System Air Changing and Humidification Units, with heating coils, motor driven fans and copper duct extensions.
5—Pacific Converters, Model ER1 #12 equipped with static eliminators, Eclipse air brush, electric stop motion. 1950 Model.
1—Pacific Eveness Tester, Mfg. by Anderson Machine Co. equipped with sliver and yarn head. Motor driven. 1956 Model.
1—Warner-Swasey Dual Head Pin Drafter, Model M2350, can creel, can delivery, using 15" x 36" cans. Motor driven. (Used in Research Dept.)
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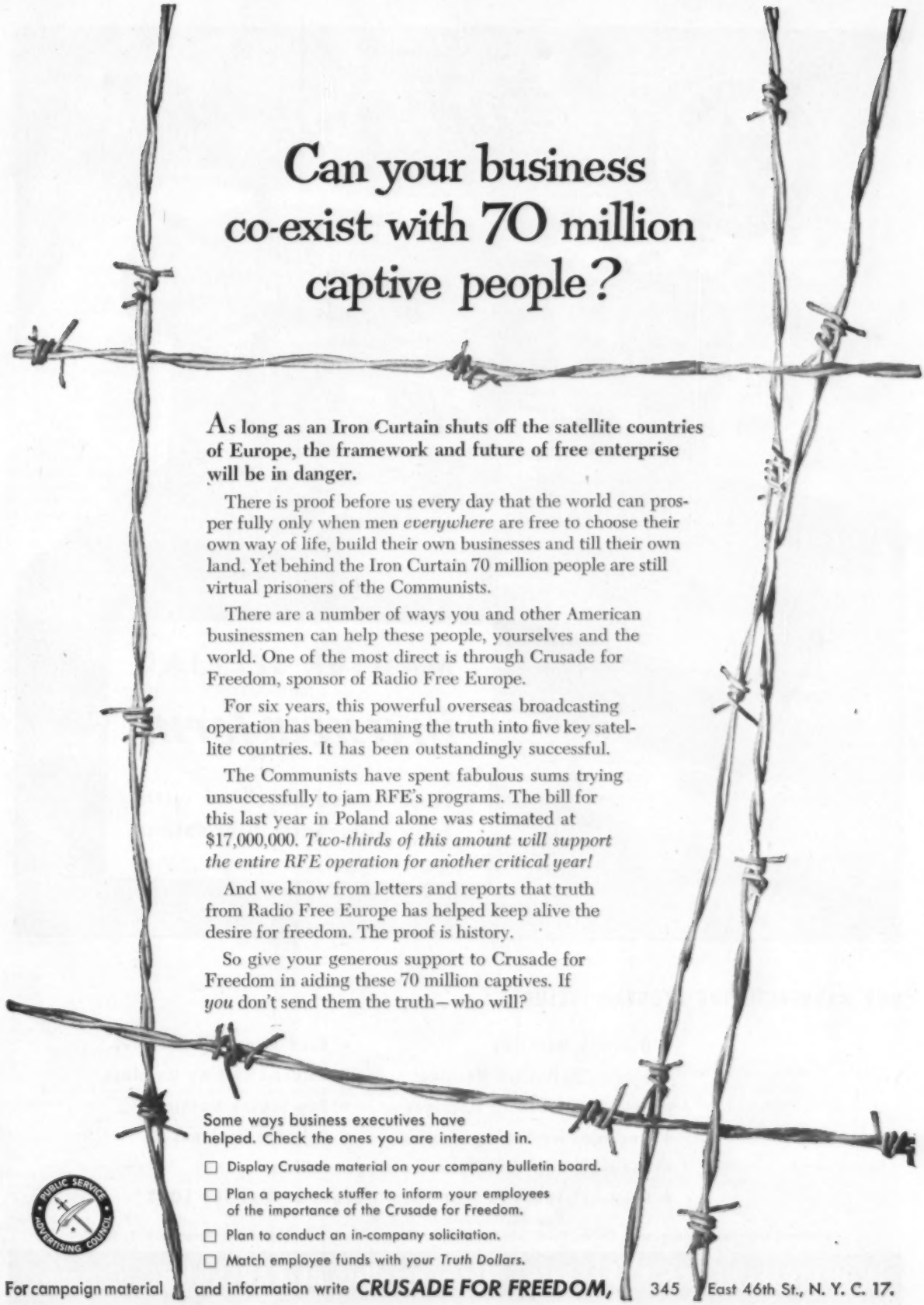

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C. Chemicals and Dyestuffs.
D. Cleaning Equipment.
E. Dyeing, Finishing, and Cloth Room Equipment and Supplies.
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Bahnson Co.	14	A
Barber-Colman Co., Textile Div.	261	R
Becco Chem. Div. Food Machry. & Chem. Corp.	33	C
Bennett Rose Co.	238	P
Boger & Crawford	5	G
Borne Chem. Co.	267	C
Brainard Steel Div. Sharon Steel Corp.	197	P
Branson Co.	93	G
Bristol Co.	84-85	K
Buffalo Forge Co.	219	A

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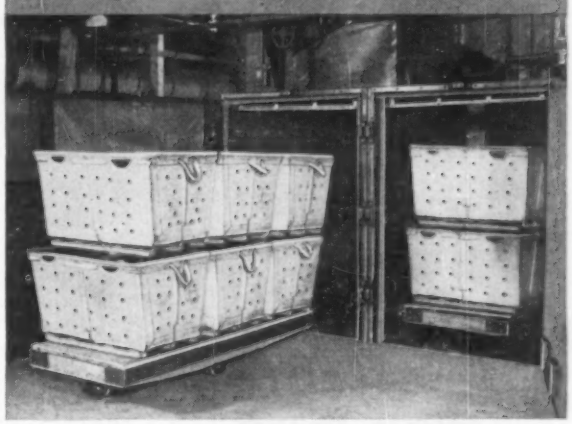

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No.	Long	Wide	Deep
1½	18"	14"	12 "
2	22"	14"	14 "
2½	24"	15"	15 "
3	24"	18"	15½"
3½	24"	18"	18 "
4	30"	18"	16 "
4½	30"	18"	18½"
5	30"	18"	20½"
6	30"	20"	20½"
8	34"	22"	23 "
10	36"	24"	25 "
12	36"	26"	27½"

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Caldwell Co., Inc., W. E.	270	B, E
Carbic Color & Chem. Co., Inc.	227	C
Celanese Corp. of America Yarn Div.	34-35, 160	G
Cen-Tennial Cotton Gin Co.	44	T
Chemstrand Corp	52-53, 189	G, N
Ciba Co.	235	C
Cities Service Oil Co.	186	M
Cleaver-Brooks Co. Boiler Div.	229	Q
Cleveland Tramrail Div., The Cleveland Crane & Eng'g. Co.	233	P
Clinton Corn Processing Co.	225	C
Coumbia-Southern Chem. Corp.	89	C
Continental-Diamond Fibre Div. The Budd Co., Inc.	248	T
Corn Products Sales Co.	255	C
Cosa Corp., Textile Div.	76	T
Crane Co.	66	H, R
Crompton & Knowles Corp.	13	N
Crompton-Richmond Co., Inc.	256	O
Crucuible Steel Co.	171	K
Custom Scientific Instruments Inc.	271	
Dary Ring Traveler Co.	16	T
Davis & Furber Mach. Co.	224	T
Dayton Rubber Co., The Textile Div.	30-31	RT
Deutscher Spinnereimaschinenbau, Ingolstadt	29	T
Diehl Mfg. Co.	28	F, Q
Dobeckmun Co.	74	G
Dodge Mfg. Corp.	50	Q
Dolge Co., C. B.	254	B
Dommerich & Co., Inc., L. F.	26	N
Dow Chemical Co.	218	C
Draper Corporation	1	R
Dronsfield Bros. Ltd.	283	T
Duesberg-Bosson of America, Inc.	260	T
duPont de Nemours & Co., E. I. Film Department	217	G
Durant Mfg. Co.	240	K
Eastman Chem. Prods., Inc.	185	G
Elliott Co. Crocker-Wheeler Div.	73	F, Q
Emerson Apparatus Co.	254	K
Esso Standard Oil Co.	182	M
Fairbanks Co.	226	H
Fairbanks, Morse & Co.	249	K
Fairtex Corp.	93	G
Fidelity Machine Co., Inc.	64-65	L
Finnell System, Inc.	88	D
Foster Machine Co.	169	T
Foxboro Co.	208	K
Franklin Process Co.	80	G
Gardner-Denver Co.	82	H
Gastonia Textile Sheet Metal Works	282	T
Gates Rubber Co.	200	R
Gaylord Container Corp.	179	P
Globe Dye Works Co.	10	G
Goodrich Chem. Co., B. F.	36	C
Graphic Systems	244	N
Harshaw Chemical Co.	193	C
Haskell-Dawes Mach. Co., Inc.	242	T
Hayssen Mfg. Co.	8	P
Herbert Prods. Inc.	266	T
Herr Mfg. Co., Inc.	78	T
Hubinger Co., The	205	C
Hungerford & Terry, Inc.	258	B
Hunter Machine Co., James	91	E
Hyatt Bearings Div., General Motors Corp.	177	O, Q
Ideal Industries, Inc.	204	T
Industrial Dryer Corp.	269	T

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Industrial Rayon Corp.	67	G
Industrie-Werke-Karlsruhe	280	E
Ingersoll-Rand Co.	216	H
International Salt Co., Inc.	259	C E
Ives Co., Loyal T.	42	I
Jenkins Bros.	37	H
Jenkins' Sons, Inc., M. W.	250	E
Johnson Corp., The	284	H
Johnson Bronze Co.	264	O Q
Keever Starch Co.	207	C
Kidde Mfg. Co., Inc.	215, 253	I
Knitting Arts Exhibition	270	N
Kuljian Corp., The	268	N
Lane & Bros. Inc., W. T.	281	P
Laurel Soap Mfg. Co., Inc.	271	C
Lazenby Co., The F. A.	264	T
Leighton Mach. Co.	55	I
Lindley & Co., Inc.	230	K
Link-Belt Co.	7	Q
Loper Co., Ralph E.	268	N
Ludell Mfg. Co.	212	E H T
Main, Inc., Chas. T.	270	N
Manhattan Rubber Div.	90	Q
M-B Products Co.	244	H
McBride, Ed. J.	6	R
Metallizing Engineering Co., Inc.	260	O Q
Micro Switch Div. of Minneapolis-Honeywell Reg. Co.	241	F
Miller Fluid Power Co.	92	E H O
Minneapolis-Honeywell Reg. Co. Industrial Div.	86-87	K
Micro Switch Div.	241	F
Monsanto Chemical Co. Inorganic Chem. Div.	83	C
Plastic Div.	237	C
Montgomery Co., The	270	G
Morton Salt Co.	181	C
Multi-Tex Prods. Corp.	246	G
National Aniline Div. Allied Chem. & Dye Corp.	43	C
National Starch Prods., Inc.	199	C
New Departure Div. of General Motors Corp.	15	O Q
Norgren Co., C. A.	63	M
Oakite Products, Inc.	258	C
Ordnance Gauge Co.	234	I
Platt Bros. Ltd.	162	T
Pneumafil Corp.	11	T
Portland Co., The	242	E I RT
Proctor & Schwartz, Inc.	239	E
Raybestos-Manhattan, Inc. Manhattan Rubber Div.	90	Q
Reeves Div. Reliance Elec. & Eng'g. Co.	203	Q
Reiner, Inc., Robert	60	I
Reiner-Famatex, Inc.	209	I
Richmond Oil, Soap & Chem. Co., Inc.	252	C
Riggs & Lombard, Inc.	68	E
Robert & Co. Associates	2nd Cover	N
Roberts Co.	9	T
Rohm & Haas Co.	221	C
Ryerson & Son Inc., J. T.	234	O

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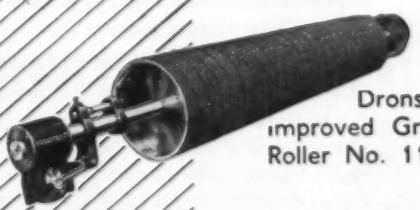

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Scott Testers, Inc.	263	R
Sheffield Corp., The	266	R
Sherwin-Williams Co.	195	E
Signode Steel Strapping Co.	263	P
Sinclair Refining Co.	75	M
Smith, Drum & Co.	211	E
Socony Mobil Oil Co., Inc.	41	M
Solvay Process Div. Allied Chem. & Dye Corp.	265	C
Sonoco Products Co.	32	E
Southern Shuttles Div., Steel Heddle Mfg. Co.	173	R
Speizman Co., Inc., Morris	269	I
Spraying Systems Co.	262	A
Steel Heddle Mfg. Co.	173	R
Stephens-Adamson Mfg. Co.	77	O Q
Stowe-Woodward, Inc.	60	E
Supreme Knitting Mach. Co., Inc.	158	I
Taylor Instrument Cos.	245	K
Textile Machine Works	94	L
Theiler Corp., H. J.	257	R
Tompkins Bros. Co.	244	L
Torrington Co., The (Bearings)	223	O Q
Towmotor Corp.	45	P
Turbo Machine Co.	96	T
Union Bag-Camp Paper Corp.	56-57	P
Unionmatex, Textilmaschinen-Union G. M. B. H.	27	E
Universal Winding Co.	46	T
Utica Novelty & Mill Specialty Co.	262	E L
Veeder-Root, Inc.	4th Cover	K
Victor Ring Traveler Co.	81	T
Vis-A-Plug Inc.	271	H
Warner & Swasey Co.	47	T
Westinghouse Elec. Corp.	70-71	F Q
Whitin Mach. Works	48-49	T
Wildman-Jacquard Co.	2	L
Wood's Sons Co., T. B.	214	Q
Yale & Towne Mfg. Co.	222	P

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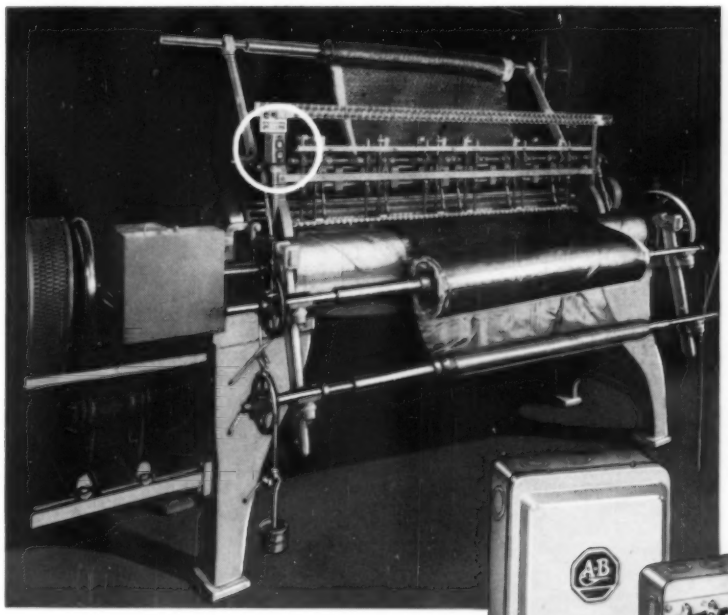
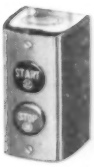
The Sign of
QUALITY
Motor Control



Pathe multi-needle quilting machine equipped with Allen-Bradley Bulletin 709 automatic starter.



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FOR-REV-STOP 3-button station.

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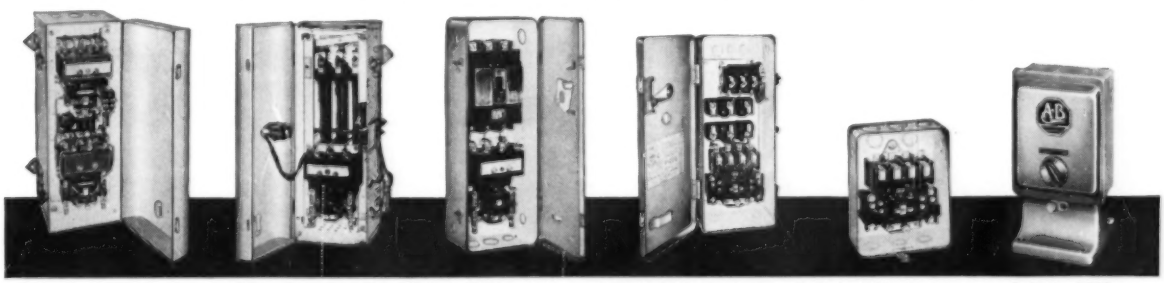

Bulletin 740 automatic velvet smooth motor starter.

Bulletin 640 manual stepless resistance motor starter.

Bulletin 713 combination starter with circuit breaker.

Bulletin 712 combination starter with fused, visible contact, disconnect switch.

Bulletin 709 Size 1 automatic across-the-line motor starter.

Bulletin 1209 manual loom switch—pedestal mounting.

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